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236
Richardson, F.
Southeastern Oregon
1937

(Order as arranged and indexed
by Richardson - see first page)

John Richardson 1937

South-eastern Oregon Field notes

May 25, 1937 - June 22, 1937

(In company with Dr. Allen H. Miller and Joe T. Marshall, Jr.)

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Month of 20-mile Creek, 9 mi. S Adel, Lake Co., Oregon

May 25, 1937 - A brief description of this immediate region were appropriate now - today being our first day of collecting and intensive investigation of this country. - The main Warner Valley, into which 20-mile Creek opens, is extensive, quite flat, with larger growth as small willows typically only where canyons enter the valley. The amount of rain has apparently been exceptionally large this year resulting in large expanses of shallow water with tulips, grasses etc. This has provided a habitat for various water birds. (Only cursorily observed. Shovelers, Cinnamon Teal, Coots, Mallards - seen paired for example)

20-mile Creek runs about east and west; volcanic ridges go up fairly steeply from the stream on either side of the canyon, becoming fairly high even at the mouth of the canyon. (from 300-500 ft.) The canyon is fairly flat towards its mouth, widening during its last half-mile or so, to about $\frac{1}{4}$ mile. This has apparently made possible a more extensive riparian habitat at this point with more willow thickets and open meadow.

Briefly, the chief habitats so far encountered have been - riparian, willow and cottonwood; meadow, marshy, low meadow or cultivated field; high chaparral, on bank near stream, grading into riparian; low chaparral, on hillside, rather sparse

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20-mile Creek May 25 cont.

and of bushes averaging say 2½'. Both these chaparral habitats are, tentatively, of one same dominant sagebrush (2). The high type is larger and varied with several other bushes, probably because of more water. The low, hillside type is almost without exception of this sagebrush only. The bushes are low and rather definitely and regularly spaced - probably an indication of lack of much available water. Occasional junipers are growing on the hillside, becoming more abundant higher up.

The abundance of birds here is at once apparent. That this abundance seems centered near around the floor of the canyon, especially its mouth - seems true for several reasons. Water is here most plentiful, vegetation most varied and luxuriant, civilization present, and insects more abundant and varied. Casual observation of birds on the canyon sides shows a lesser abundance in numbers and species; Rock-wrens and Towhees, for example, being present in small numbers. (The rocky habitat should have been included in the shore habitat discussion, for it becomes most prominent, especially higher up the canyon sides.)

20-mile Creek May 25 cont.

Birds Identified, with General Abundance		
✓ Red-shafted Flicker	2.	Andean Warbler
Mourning Dove	v. com.	✓ Yellow-throat
Sparrow Hawk	2	✓ Lazuli Bunting
Red-tailed Hawk	1	✓ House Wren
Marsh Hawk	2	Rock Wren
✓ Long-eared Owl	2	✓ Black-backed Goshawk
✓ Magpie (Black-billed)	v. com.	✓ Lark Sparrow
✓ California Jay	com.	✓ Brewer Sparrow
Western Crow	com.	+ Western Robin
Black-crowned Night Heron	1	Western Bluebird
✓ Brewer Blackbird	v. com.	Mountain Bluebird
✓ Bullock Oriole	2	✓ Western Tanager
Red-winged Blackbird	com.	- Poorwill
✓ Cowbird		Western Meadowlark
Violet-green Swallow	com.	✓ Song Sparrow
✓ Rough-winged Swallow	uncom.	Golden Eagle
✓ Cliff Swallow	uncom.	Turkey Vulture
Barn Swallow	com.	Spotted Sandpiper
Wood Pecker	1	
Western Flycatcher	1	N.B. (See additions on pp. 5, 6 & 8)
✓ Empidonax sp.	1	
✓ Ash-throated Flycatcher	v. com.	
Black Phoebe	1	✓ = collected (by myself)
- Warbling Vireo	com.	v. com. = very common
✓ Phoebe Warbler	1	com. = common
✓ Yellow Warbler	3	uncom. = uncommon

Mouth of 20-mile Creek, 9 mi. S Adel, Lata Co., Oregon

May 26, 1937 - On this, the second day of collecting, observation and collecting was done farther from the immediate mouth of the canyon. Two of us went up above the east ridge of the canyon to something of a sagebrush covered mesa. Our third member went fairly high up the west side of the canyon - high enough to get into numerous small junipers. These extensions of habitats studied were of interest in comparison to the lower habitats already studied. On the sagebrush mesa (here sagebrush of predominately one species (see ff. 142) Brewer Sparrows were decidedly abundant. Dr. Miller collected several Vesper Sparrows and a Sage Sparrow - neither of which have been seen lower down, although the couple hundred feet of higher altitude give rise to little difference in vegetation.

Some observations were made in regions of red or dark lava boulders. Rock Wrens were the most abundant and almost the only bird here associated. However the Rock Wrens seem pale to me and their association with dark lava might tend to disprove their possible protective coloration. A single lizard was seen (will be collected, if possible, in future) on the dark and red rocks. It was definitely red or reddish coloration. This protective coloration,

20-mile Creek May 26 cont.

if 2 groves of interest by being verified, would be of interest compared as to the Rock Wren. It might indicate the more sedentary habit of the Lizard and a closer association with the red lava.

The juniper habitat was not personally studied except in the few isolated trees growing on the east wall of the canyon. A flicker was collected and two others observed near juniper groves on the west wall. The one collected was filled to softness with ants. Several flickers have been seen in the floor of the canyon but may it be that ants or certain ants are associated with junipers? Western Tanagers seemed to show a preference for junipers - perhaps realizing their more typical (3) higher life zone nesting. Perhaps a food relation? A pair of Golden-mantled Ground Squirrels also were seen only in the vicinity of rocks by junipers. How is this comparable to the tanagers?

Additions to Birds Identified (see p. 3) -

- ✓ Brewer Sparrow
- ✓ Vesper Sparrow
- ✓ Sage Sparrow
- ✓ Green-tailed Towhee

Prairie Falcon

Horned Owl

Month of 20-mile Creek, 9 mi. S Adel, Lake Co., Oregon

May 27, 1937 - The morning, from 4 - 8:30 A.M. was spent in observing and collecting birds in the extensive area of high sagebrush (dominant) at the broad mouth of the canyon, perhaps best considered part of Warner Valley proper. That this is a definite habitat for certain species is attested by the finding here of birds not seen in other regions (as bush-tits, Clipping Sparrow, Mallards (nesting)). It seems to approach the ideal habitat for other species (as quail, Yellow-throats, chats, Lazuli Buntings) which are here very common while less common or rare in habitats in the canyon itself.

Data on breeding birds may be summarized:
Breeding pairs: Mourning Dove,
Building nests: Brewer Sparrow, Yellow-throat, Robin
with eggs: Mallard, Calf. Jay, Calf. Quail, Brewer Blackbird
with young: Long-eared Owl, House Wren

Additions to Birds Identified (see p. 3)

✓ Clipping Sparrow	Lined
✓ Pectoral Duck	
✓ Shoveler Duck	✓ Long-tailed Chat
a white-crowned Sparrow	Tolmie Warbler
✓ Plumbeous Bush-tit	
✓ Steller Jay	
✓ Titmouse	

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Month 20-mile Creek, 4 mi. S Adel, Lake Co., Oregon

May 28, 1937 - Collecting and observing were done this morning principally on the upper west ridge of 20-mile Creek, in the junipers. These junipers are typically small trees, 15-25', but are occasionally up to 40', apparently where a little more water is available. An actual forest is not formed for junipers are well separated from each other with brush in between.

Animal associations with the junipers have been noted. Vitruvia seem limited to them, as do Black-throated Gray Warblers, Steller Jays (1). A large chipmunk was seen under junipers. A porcupine was seen in a juniper and probably this species has a food relation with the juniper, this being the only abundant tree in these regions. The "berries" of the juniper might serve as animal food. Their outer layer is sweetish and not unpleasant to the taste.

Cattle have wandered and fed over most of the slopes seen. Just what effect this has had on birds or mammals is unknown. Probably the effect has not been great as there seems to be little low annual forage for cattle and no birds present which are typically ground or meadow dwellers.

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South 20-mile Creek, 9 mi. S of Lake City, Oregon

May 29, 1937 - The day was again spent (5-9 AM.) in the flat areas of high sagebrush with occasional thickets of willows, gooseberry (?) and wild rose (?). These thickets are a distinct habitat in themselves; for example the yellowthroats are typically confined to them as are the Song Sparrows, Chats, and several warblers. The willow thickets are usually associated with running water while the other thickets may seem to be "bare islands" in the general sagebrush habitat.

The abundance of birds in the whole region of 20-mile C. may be explained on the basis of number of habitats. Mountains, canyon and valley with varying soil and water conditions, combine to make a large number of habitats possible. The effect of altitude (probably around 4,000') is problematical here and must be considered in the light of the above factors.

Additions to Birds Identified (see p. 3 etc.)

Cinnamon Teal

Caspian Tern

Great Blue Heron

Sage Thrasher

Richardson 1937

9.

Mouth 20-mile Creek, 9 mi. S Adel, Warner Valley, Oregon

May 31, 1937. - Collecting and observation were carried on in the area of high sagebrush at the broad mouth of the canyon and also in the canyon proper. The weather was clear and hot to-day in contrast to wind yesterday. On such a hot day the birds seem to become quiet vocally and actively, quite early - say by 8 or 9 A.M. This has seemed particularly true of the juniper habitat perhaps because there is as more definite association of birds with habitat here, and fewer ~~to~~ birds.

Bailey's life-zone map of Oregon would make this region (Warner Valley) Upper Sonoran. This is probably correct in part if the predominance Artemesia and Lippia (²) may be taken as indicators, especially as they are high (up to 8' in places). However, this seems to be a higher "type" of Upper Sonoran than that around Berkeley, Claremont etc. - higher in the life-zone series. This seems true as indicated by extremes of temperature (more even falling at end of May) and a comparatively late breeding season.

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10

SE End Warner Valley, Lake Co., Oregon

June 1, 1937 - A trip was taken this morning around the edge of the end of the valley. Of primary interest was a region of shallow lakes, grassy meadow, marsh and tules. Though large areas of Warner Valley are now of this type, the small region studied is probably a fair index of birds in other parts. Following is a list of the birds seen - breeding birds almost without exception:

Sandhill Crane 11 seen, others heard in distance

Bittern

Red-head Duck

Killdeer

Willet, Western

Avocet, American

Shoveler Duck

Canada Goose

Mallard Duck

Pintail Duck

Cinnamon Teal

Caspian Tern

Foote's Tern

California Gull

Marsh Hawk

Coot

Yellow Headed Blackbird

Grasshopper Sparrow

Wilson Phalarope

11.
Robertson 1937

SE End Warner Valley June 1, 1937 (cont.)

Residents say that this is an exceptional year in having much water in Warner Valley. As it is it seems to be an ideal breeding territory for ducks, geese, cranes etc. The abundant water may well have made possible the great number and variety of passengers etc. with increased vegetation and insect life. If numbers of water birds have not been able to breed here in previous years, the above may be evidence of their quickness to take advantage of conditions approaching optimum, rather than trying to breed in the same region every year.

A line of 30 mouse traps was set out last night in a sagebrush region just east of the mouth of 20 mile C. next to the hills. Soil rather hard - a lot sandier on the flatter ground and next to the rocks - in which places burrows were more in evidence. Caught 7 mice - *Peromyscus*, *Perognathus parvus*, and *Dipodomys ordii* (*macrourus*). All were caught on the lower flatter, slightly sandier area - evidence, probably that small soil differences determine distribution of rodents.

Richardson 1937

12.

Berley Camp, Warner Mts., 14 mi. SW Adel, Lake Co., Oregon

June 2, 1937 - A new camp was made last night in this location. Brief description of the region - a gradual forested slope, predominately yellow-pine at the lower edge where Artemesia and isolated or groups of junipers intermingle with the pines and shrubs like this place. In the region higher up the slope, firs become more abundant. Sage thickets along watercourses or moist valleys or slopes, are common and extensive. Junipers are found, though only occasionally, at the highest parts visited.

Water is abundant, seeping out often on rather flat slopes. Indications (rodent cores are almost intact) are that snow has not been melted for very long off the ground. Snow banks are still present in places and provide water.

Cattle have been over the country generally the flatter, more open parts, rather thoroughly. It is probable that their effect has not been especially harmful to birds - is in no way comparable to a flock of sheep grazing over open grassland.

J. Richardson 1937

13.

Barley Camp, Warner Mts., 14 mi. SW Adel, Lake Co., Oregon

June 2-June 5, 1937 Birds Identified with greatest abundance

Turkey Buzzard	2	Western Robin	com.
Goshawk	1	Ruby-crowned Kinglet	v.com.
✓ Sparrow Hawk	com.	✓ Western Warbling Vireo	v.com.
Red-tailed Hawk	com.	Yellow Warbler	uncom.
Mourning Dove	uncom.	✓ Audubon Warbler	com.
Horned Owl	uncom.	Western Tanager	com.
✓ Nighthawk	com.	✓ Evening Grosbeak	
Pacific Nighthawk	✓ 2	✓ Red Crossbill	com.
✓ Calliope Hummingbird	1	✓ Green-tailed Towhee	v.com.
✓ Lewis Woodpecker	uncom.	✓ Fox Sparrow	v.com.
✓ Hairy Woodpecker	com.	Brewer Sparrow	v.com.
✓ Downy Woodpecker		Soper Sparrow	2
✓ Red-bellied Sapsucker	v.com.	✓ "White-crowned" Sparrow	com.
✓ Red-shafted Flicker	com.	California Gull	5
Wood Pewee	com.	Sage Thrasher	com.
✓ Wright Flycatcher	v.com.	Oregon Tern	v.com.
✓ Steller Jay	com.		
California Jay	uncom.		
Clark Nutcracker	uncom.		
Mountain Chickadee	com.		
✓ Red-breasted Nuthatch	uncom.	v.com. = very common	
✓ Sander-billed Nuthatch	com.	com.	common
✓ Brown Creeper	uncom.	uncom.	uncommon
Western House Wren	v.com.	v	collected
Townsend Solitaire	uncom.		
✓ Hermit Thrush	uncom.		

Barley Camp, Warner Mts., 14 mi. SW Abel, Lake Co., Oregon.

June 3, 1937. Collecting and observation were done mostly at the lower edge of the forested area, where sagebrush occupies much space between isolated or small groups of pines or junipers. Such a habitat is probably of particular advantage to certain species of birds: Green-tailed Towhees, breeding typically in sagebrush areas, use the trees as lookout and singing perches; Fox Sparrows may often nest in close proximity to trees (aspens, pines -) though they typically forage in adjacent sagebrush or open areas; Sapsuckers drill the Western Juniper often; Sparrow Hawks seem to prefer such habitat, feeding or nesting in high, isolated trees; Steller Jays, though found in the forest also, frequently pass from one large isolated tree to another, and may forage on ground between.

Woodpeckers are very abundant and are perhaps the most fully represented group of birds in this region. This may be explained by the variety of trees suited both sapsucker and woodpeckers, abundant insect food & natural conditions as to dead stumps or trees, a partial combination of Upper Sonoran Transition and Canadian zones with (apparently) fairly mild climate (temperature).

Richardson 1937

15.

Barley Camp, Warner Mts., 14 mi. SW Adel, Lake Co., Oregon

June 4, 1937. The lack of certain species in a given region may serve as a clue to what conditions are optimum, but may be puzzling when conditions seem right for them, especially when the region corresponds to one in which the species are already known. When this latter seems true we are forced to conclude (speaking, here, primarily of resident birds) that the species has not reached a balance i.e. does not occupy all of its trophes available, or that it is not completely resident but must wander, perhaps depending on the food supply. A related question is why do not some species increase far beyond normal, so when the food available to them seems unlimited? Partial answer to this is that we are liable to notice on abundance of food and not its peculiarity. Thus great swarms of insects as Mayflies may be seen but may be absent other years. The presence or abundance of a species is certainly influenced by many factors, apparently working to the best advantage of the species over the years of its evolution - years involving extremes of conditions.

Plush, Lake Co., Oregon

June 6, 1937 - Camp was made on the very valley floor in this part of Warner Valley. Brief description of region - Asternocia and Acacia principally coming down on the dry slopes to meet the valley floor which is almost entirely of green meadow with intervening rows or clumps of willow thickets, and a large body of water with various canals or streams entering into it. Though the willow thicket habitat was duplicated at 20 mile Creek, other habitats were not and even the willow habitat is different in being purer and having different associated habitats.

Evidence of different habitats is afforded by new birds found here - as Savannah Sparrow, Long-billed Curlew, Eastern Kingbird. - The meadows have growth seldom over 18" high, mostly of grasses, rushes, iris, and dandelions. They are marshy in a few places - in which places the rushes become dominant and higher. The curlews seem most limited to this habitat in their breeding and activity. Song Sparrows, or Chats, for example, seem just as limited to the thickets, while certain birds as Kingbirds and Savannah Sparrows, are associated with both.

F. Richardson 1937

Plush, Lake Co., Oregon

Time 6-7 1937	Birds Identified, with General Abundance
Turkey Vulture	Bullock's Oriole 2
Marsh Hawk	✓ Savannah Sparrow v. com.
Pintail Duck	✓ Song Sparrow com.
Cinnamon Teal	
Mallard	
Great Blue Heron	(fairly large colony)
Long-billed Curlew	com.
Killdeer	2
California Quail	uncom.
Cliff Swallow	
Pacific Nighthawk	com
Butterfly Flycatcher	
✓ Red-shafted Flicker	1
✓ Traill Flycatcher	com.
Western Kingbird	com.
✓ Eastern Kingbird	3
Say Phoebe	
Black-billed Magpie	v. com.
Western Grouse	v. com.
Western Warbling Vireo	com.
✓ Yellow Warbler	v. com.
✓ Long-tailed Chat	v. com.
✓ Yellowthroat	v. com.
Cowbird	com.
Red-winged Blackbird	
Brewer Blackbird	uncom.

T. Richardson 1937

Flush, Lake Co., Oregon

June 7, 1937 - The effect of water supply seems clearly shown in this region in pairing several habitats side by side and in showing the impossibility of applying the ^{life zones} ~~here~~ in other than an association (floral, habitat) way. Thus a rattlesnake was collected in the arid region right next to the willow thickets having dark and yellow throats.

Relations of birds to man seem to give little trouble in these parts primarily because agriculture is mostly limited to hay. This may explain the comparative tameness of such ordinarily persecuted birds as crows. A magpie was noticed hung on the wire of a chicken-pen - ostensibly as a warning to marauding magpies, and seemingly evidence of such past action. The breeding conditions, especially for shore and water-birds, in this whole James Valley, and the lack of indiscriminate hunting or nest destruction - give one hope for the maintenance of these birds' numbers. This desirable state of affairs is probably best correlated with the very sparse and ^{asserted} "population - the lack of the injurious type of hunter found near centers of population.

J. Richardson 1837

19.

— Fort Warner, Hart Mts., Lake Co., Oregon

June 7-8, 1887. - A night and half a day were spent at this location - situated on the eastern, gradually sloping exposure of the Hart Mts. plateau. The whole exposure is almost continuous sagebrush with occasional groups of willows and aspens in the shallow canyons, and with an isolated stand of Yellow Pine (apparently the only ones on the whole side of the plateau) mixed with poplar, willow and birch; located at the Fort Warner. Even from our cursory observations, it was clear that this stand had caused a concentration of birds and of many kinds. The presence of a number of associated birds is evidence of this - crossbills, evening Grosbeaks, Audubon Warblers, woodpeckers and juncos. The occurrence of undoubtedly breeding Redstarts, indicates a western extension of this species, made possible by this stand of "heat."

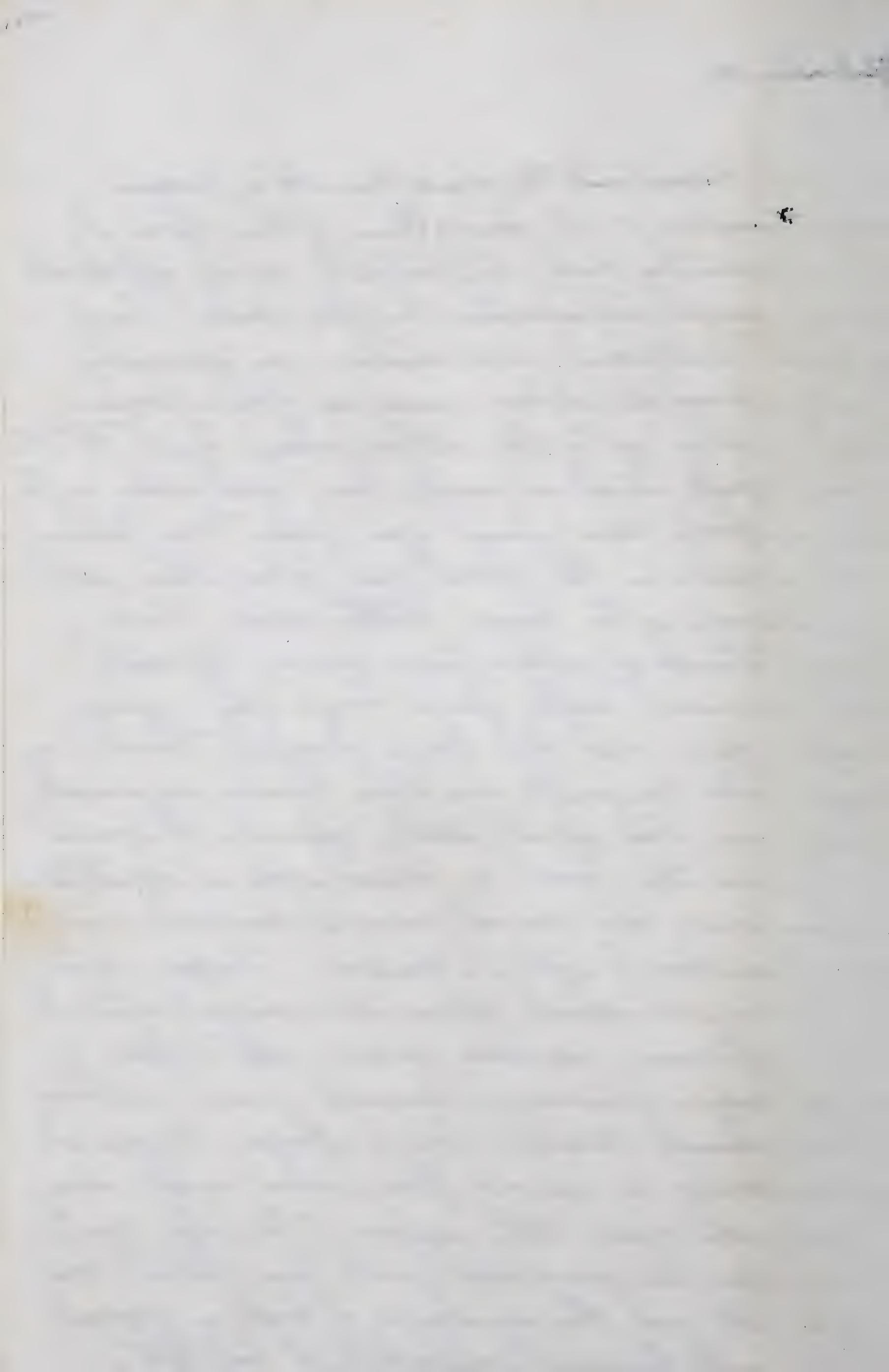
The potentiality of such an oasis in sub-speciation is of primary interest. Obviously a great many of the same species are found in comparable associations, say in mountains west of Warner Valley. The question is, have these species become established by mere chance at Fort Warner, or are the wanderings of birds over relatively short distances, quite frequent?

F. Richardson 1937

20.

Nose Creek Mts., Warner Mts., Lake Co., Oregon

June 10, 1937 - A description of the type of country and its habitats were appropriate as an introduction to the birds. Camp is at about 6500' elevation, on generally gradual slopes running from Warner Valley up to the rather steep Nose Creek Mts. The peak itself is mostly bare and rocky with fairly large brush area below. Firs predominate in the forest just below this, while coming to lower, flatter areas, large stands of yellow pines occur, typically mixed with fewer large firs. Young pines and firs form frequent thickets as do Manzanita and other bushes occasionally in the forest itself. Typically the ground in the forest is almost free of vegetation save for several small annuals and a dwarf (upto 6') Berberis. Surface water is abundant. Where it is concentrated into streams, meadows occur, with Tellima (?), aspen groves are frequent, and willow swamp thickets also in places. Aspens also occur in several places where water does not reach the surface. The birds present can be correlated with these distinct habitats and the abundance of birds in general with the variety and extent of habitats.



Nose Creek Fl., Warner Mts., Lake Co., Oregon

June 11, 1937. This region seems to be one in which natural conditions and balances are almost unaltered, evidenced in part by the variety and abundance of birds. Logging has not been done and cattle appear not to have been in the region. Goshawks, day predators, are present and Saw-whet Owls, night predators, also. Steller Jays are present in normal (perhaps) numbers. Almost all the woodpeckers that might be expected, save the Pileated and possibly the American 3-toed, have been seen. This may be due to variety of habitat (including large Yellow Pine stands) and also to optimum food conditions.

Breeding status of birds, as far as known, may be summarized:

Eggs: Trice, Green-tailed Towhee, Townsend Solitaire

Young: Hairy Woodpecker, (very young)

Probably many other species have eggs but few young - the young being more easily found as a rule! It seems true that any valid generalization on time of nesting in life zones, must be based on rather complete information, perhaps not feasible on such a collecting trip as this.

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Nicasia Creek Pb., Warner Mts., Lake Co., Oregon

June 9-11, 1937	Birds Identified with Gen. Abundance	
Turkey Vulture	Mountain Chickadee	
Red-tailed Hawk	✓ Horned Puffin	v. com.
- Goshawk	3 Ruby-crowned Kinglet	v. com.
Sparrowhawk	1 Western Yellow Wagtail	com.
Mourning Dove	unc. Andean Warbler	com.
Horned Owl	Western Tanager	com.
Saw-whet Owl	2 Evening Grosbeak	2
- Calliope Hummingbird	com. Black-headed Grosbeak	com.
Red-shafted Flicker	com. ✓ Red Crossbill	v. com.
White-headed Woodpecker	1 ✓ Green-tailed Towhee	v. com.
Arctic 3-toed Woodpecker	com. ✓ Fox Sparrow	com.
- Williamson Sapsucker	unc. Brewer Sparrow	
Red-crested Sapsucker	com. ✓ White-crowned Sparrow	com.
Downy Woodpecker	unc. Cassin Purple Finch	com.
- Hairy Woodpecker	com. ✓ Oregon Tern	v. com.
Wood Pewee		solitary visit
✓ Night Heron		unc.
- Steller Jay		com.
- Mountain Chickadee		v. com.
- Red-breasted Nuthatch		unc.
- Slender Billed Nuthatch	unc.	v. com. = very common
- Pygmy Nuthatch	unc.	com. = common
- Brown Creeper	unc.	unc. = uncommon
- Western Grouse (var.)	com.	✓ = collected
Townsend Solitaire	com.	# o. indicate rarity
Western Robin	com.	

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1 mi. S East Lake, Paulina Mts., Deschutes Co., Oregon

June 13, 1937 - The region studied is between 6,000-7,000', the lower country having some Yellow Pine, Lodge Pole Pine becoming dominant higher up, with fairly large extents of Hemlock seemingly on high North slopes. Surfaces water and vegetation are almost entirely lacking, save for sparse grass clumps in some places and a little *manzanita* (*Arctostaphylos*). This seems due entirely to the porous nature of the pumice ground and the very little thickness (c 3") of humus or soil.

East Lake (or Paulina Lake) being an isolated body of water in this whole mountain region, might show interesting relations to birds or other animals. East Lake was only cursorily seen. A Barrow's Golden-eye was seen for it, and robins were seen around the shore. 7 leaping clowns of *Hyla* were heard at night - evidence of their concentration around the lake.

Whether one considers food, soil or vegetation the primary factor is bird presence or absence, it seems equally true that they combine in this region - little soil giving little vegetation giving little plant or insect food, giving a paucity of birds.

F. Richardson 1937

1 mi S East Lake, Paulina Mts., Deschutes Co., Oregon	
June 13-15, 1937	<u>Birds Identified with grad. Abundance</u>
✓ Sharp-shinned Hawk	,
Golden Eagle	,
Mourning Dove	uncom.
✓ Hairy Woodpecker	uncom.
✓ Mountain Chickadee	com.
✓ Red-breasted Nuthatch	uncom.
✓ Brown Creeper	,
✓ Hermit Thrush	com.
✓ Ruby-crowned Kinglet	com.
✓ Mountain Bluebird	2
✓ Red Crossbill	v. com.
<u>Brewer Sparrow</u>	
✓ Oregon Tern	com.
✓ Pine Siskin	v. com.
✓ Cassin Purple Finch	com.
✓ Clark Nuthatches	com.
✓ Clipping Sparrow	v. com.

Of the above species, the crossbills and siskins are perhaps the only really very common birds, while most of those marked common are so only in a relative sense (for this particular region) but are uncommon if compared to their commonness as at Cross Peak (see p. 22).

Richardson 1937

25.

1 mi. S East Lake, Paulina Mts., Deschutes Co., Oregon

June 14, 1937. Siskins and purple-finches were observed today coming to a pool of water in the road to bathe. Perhaps longer observation would have shown them to be drinking as well. Such bathing habits are of interest in that this man-made pool (one, apparently, the only bathing place in the entire region outside of Paulina and East Lake) - probably too distant to be considered. The present atypical rains and such a transitory bathing place seem to indicate that bathing is not essential to the well-being of birds of the region. On the other hand, the paucity of birds may be explained in part by the normal lack of surface water. - That birds can bathe in the rain seems quite true, but following drying or sunny weather may be requisite.

The feeding together of crossbills and siskins is of interest in the light of their probable phylogenetic relationship, and especially since typically closely related birds have quite different forage habits. However, it was not determined if siskins opened their own hemlock cones or perhaps gleaned seed from cones opened by crossbills.

F. Richardson 1937

3 mi. W Paulina Lake, Deschutes Co., Oregon

June 16, 1937. A fairly detailed description of this region and its habitats may be in order for we hope to study all the birds of the region in our probably week's stay. Camp is at about 5700'. Generally gradual slopes upward from it lead to an extensive hemlock forest. The forested slopes below this all the way down into the Deschutes Valley, except where extensive logging has been done, are typically of dense Lodge-pole Pine growth, with stands of large Yellow Pine, pure or mixed with White Fir usually on the low flat ridges. Stands of Yellow Pine alone become most extensive on gentle slopes toward the lower valley. Stands of purely White Fir are infrequent occurring usually on sides of ridges (No. 3). Brush (Manzanita, Ridea, etc.) occurs sparingly below big timber, more thickly on exposed S. slopes, continuously almost in heavily logged regions.

The region then, as mountain country, is relatively flat, with the exception of the deeper gorge (sides up to 100') of Paulina Cr. The shallow down-mountain valleys have broad tracts of dense Lodge-pole Pine.

Richardson 1937

3 mi. W Paulina Lake. (Cont.)

June 17, 1937 - Though yesterday's collecting seemed auspicious, it was of generally common species as Hermit Thrushes and Titmice. From observation today it seems that more uncommon species will be very hard to collect. For instance, though 1 Steller Jay has been collected (4444), I have not seen or heard a single one. Again, though a cockadecker was heard once - not one has been seen. The only woodpeckers seen have been the Hairy, though living indicates more abundant and possibly other woodpeckers.

This paucity of certain birds or groups of birds (though in some cases an abundance when compared to 1 mi. S East Lake region) is perhaps again explicable on the basis of little surface water, annual vegetation and insect and plant food. Birds seen generally lacking in the dense stands of Lodge-pole, but became more plentiful in the more open Fir-Hellin Pine regions, especially where brush with open forage ground is more prevalent. The very limited grass and low willow by Paulina Cr. seem too small to be effective.

Rushmore 1937

3 mi. W Paulina Lake (Cont.)

June 13, 1937. We have had good opportunity today and on past days to compare collecting in rain or drizzle, in cloudy weather, or in sunny or ~~intermittently~~ ^{intermittently} sunny weather. The fact became inescapable that collecting becomes much more difficult when weather is rainy or continually cloudy.

We may grant that birds are generally actively feeding in bad weather but yet, and especially in forested or brushy country, we can best find birds by their songs and call notes. These songs and calls are noticeably diminished or quite absent in bad weather. Call notes may occasionally be heard in bad weather when no songs are heard, but even calls may be nearly unheard in steady rain when birds generally seek protection and are quiet vocally and physically. — The expression of bird songs by bad weather has no lasting vigor effect on this song for song may be started with full vigor or suddenly ceasing.

A comparison of singing at night to singing in the rain might be appropriate for each seems to illustrate instinctive action occasionally so strongly urged as to take place under abnormal conditions.

F. Richardson 1937

3 mi. W Paulina Lake (cont.)

June 19, 1937 - Direct association of birds with water can be studied to advantage in this region of little water - though the atypical rainy weather or continuous of late has made this more difficult. A pipe-line spouts water near camp - some 4 mi. from Paulina Cr. A Ruby-crowned Kinglet was seen bathing at this spout. If baths are essential to the well being of birds such a water source might be invaluable in a region of little water. Cassin's Solitary Vireos and Western Flycatchers have been collected near Paulina Cr. - probably an insect food relation. Robins can be found along the creek but rarely far from it.

The effect of logging can be seen best in regions below camp where brush (*Mangonita* sp.) almost covers tracts where forest must have been originally quite heavy. In this region of brush and no trees Green-tailed Tanagers are common (not seen at all in surrounding forest) and Fox Sparrows are common (uncommon in surrounding forest with less brush). Evidently man has affected an increase in these species and perhaps a decrease in others in so changing the habitat conditions.

F. Richardson 1937

3 mi. W Paulina Lake (cont.)

June 20, 1937 - Comment of a general nature concerning the whole trip, now seems in order. Life Zones have been applicable to both plants and animals - but the limitations of this application have been obvious. Certainly if the markers of Life Zones have not been very carefully chosen (because they include most of the forms to which the zones can be applied) then this system loses much of its value. However, though many birds (flickers, Red-tailed Hawks, vultures ^{etc.} Brewer's Blackbirds, Porrills) and plants (Artemesia etc.) and mammals (porcupine, coyote, etc.) show a range of two or more life zones, they are offset by a larger proportion of forms which do conform fairly well to life zones. But though this system is thus justified, I think that a combination with a system of floral-habitats might be to good advantage.

The general abundance of birds during the trip, except in inhospitable regions, has been most heartening and has led to an almost natural balance between the various species ^{and} rare in more civilized country. predators, "game" birds etc.

J. Richardson 1937

3 mi. W Paulina Lake (cont.)

June 21, 1937 - Little mention has been made of the mammals of this region as their observation and collection has been secondary to birds. The ubiquity of Callospermophilus has been noticed. Both Tamias townsendi and amoenus chipmunks have been collected. Their inactivity in the open on rainy or continually cloudy days has been noticeable. E. townsendi is comparatively rare but night 46 mouse traps were set out along and on slopes near Paulina G. The catch may be summarized thus:

10 traps in timber S of Paulina G. → 2 <u>Peromyscus</u>
12 traps just above steeper S edge of Paulina G. → 1 <u>Peromyscus</u>
14 traps along creek border in grass + low rushes → 2 <u>Micromys</u>
10 traps in brushy slopes N of creek → 7 <u>Peromyscus</u>

The brushy country, and this is the heavily logged area, seems to offer most favorable conditions for Peromyscus. The grass and rushes are limited to the creek's immediate banks and Micromys could probably be caught nowhere else. About half of the Peromyscus are young - early breeding confined to birds, perhaps.

Richardson 1937

3 mi. W Paulina Lake, Deschutes Co., Oregon

June 16-22, 1937 Birds Identified, with abundance.

<u>Red-tail Hawk</u>	+	Lazuli Warbler	1
Western Goshawk	com.	✓ Audubon Warbler	v. com.
Scissor-tail Hawk	,	Western Tanager	com.
Sharp-shined Hawk	,	Evening Grosbeak	2
Horned Owl	com.	Red-crossbill	com.
✓ Pigeon Owl	,	✓ Green-tail Towhee	com.
✓ Hairy Woodpecker	v. com.	✓ Fox Sparrow	com.
✓ Arctic 3-toed Woodpecker	2	✓ Oregon Titmouse	v. com.
Pileated Woodpecker	,	Cliff Swallow	uncom.
✓ Williamson Sapsucker	com.	Osprey	2
✓ Wright Flycatcher	com.		
✓ Western Flycatcher	com.		
✓ Olive-sided Flycatcher	,		
✓ Steller's Jay	uncom.		
✓ Red-breasted Nuthatch	v. com.		
✓ Slender-billed Nuthatch	com.		
✓ Mountain Chickadee	v. com.		
✓ Brown Creeper	com.		
Townsend Solitaire	uncom.		v. com. = very common
Western Robin	com.		com. = common
✓ Hermit Thrush	v. com.		uncom. = uncommon
✓ Ruby-crowned Kinglet	v. com.		or rare
✓ Golden-crowned Kinglet	uncom.		#s indicate rarity
✓ Western Warbling Vireo	,		v = collected
✓ Solitary Vireo	uncom.		
✓ Calaveras Warbler	uncom.		

Richardson 1937

Yellow-haired Porcupine (*Erethizon epixanthum*).

June 4, 1937 - Barley Camp, Wallowa Mts., Oregon - A large adult was discovered in juniper-sagebrush association. He was descending slowly, ^{tailward} down a small juniper - using the tail as support against the tree-trunk. From the tree he proceeded across open ground through the low sagebrush. First was noticed his striking (especially in comparison to other rodents) unconcern in being exposed and active in broad daylight. He did not apparently look for any enemies at any time. He looked at me on my yelling but went on shortly and just as slowly. On being closely approached (say 10') he stopped turned his back toward me - arching it to expose the most prominent posterior region of spines. On being prodded or very closely approached, the arched position was even more exaggerated, the head being thus better protected or less exposed (probably this same tendency to protect the vital head has been influential in the evolution of armadillos, hedgehogs -) and lashed the tail. - A profitable parallel may be made between this animal and the skunk. In both, tree-bark or leaf-eating seems correlated with spines or very tough hide, slow movement, poor vision, and climbing as adaptations.

Richardson

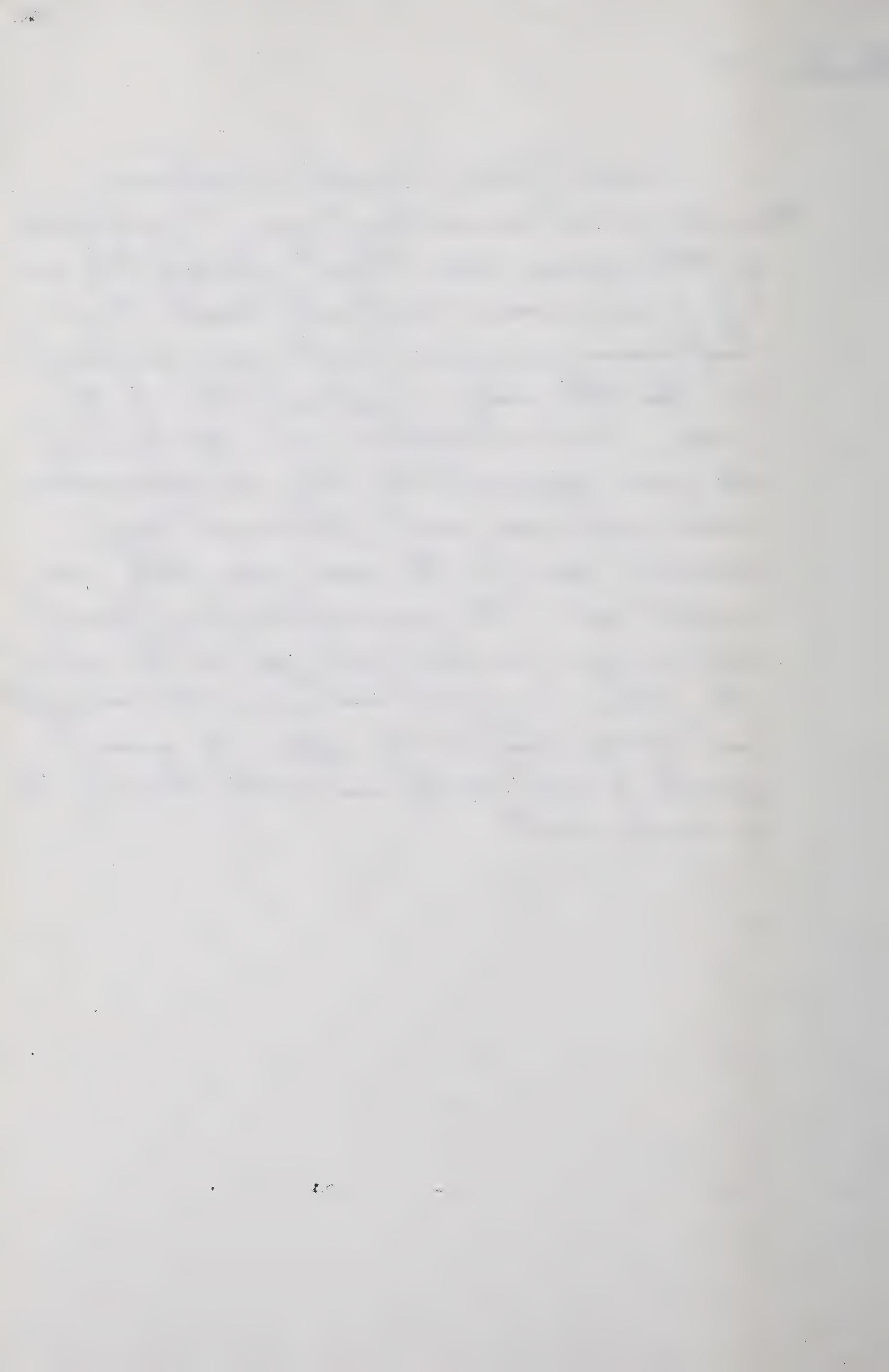
Coyote (*Canis latrans*)

June 1, 1937 SE end Warner Valley, Oregon - A coyote was watched from a distance of about 100 yards for some 15 minutes. He apparently did not see us during this time, but suddenly, probably on seeing us, ran rapidly away. When first seen, he seemed to be approaching a crane. The crane must have been able to see him, though, and the two did not come closer than 20-30 feet. The coyote was visible at all times as he slowly walked or trotted through the low grass and rushes. Probably he was intent on finding eggs or young, as of ducks. A pair of Marsh Hawks resented his presence with cries and several ineffectual "loops". Obviously and abnormally abundance of this predator might seriously affect breeding ducks, geese etc.

Richardson 1937

Canada Goose (*Brantula canadensis*)

June 1, 1937 - SE end Warner Valley, Oregon - Two families of these geese seen, though perhaps the one of 10 young was a combined brood. These 10 half-grown young and parents were surprised by the lake's edge - did not take to the water but went farther up on the bank into the "grass" (*Syrphus*?). There they disappeared from view and were quiet. They must have crouched low for the cover was little over a foot high. The second family of parents and 5 young was also surprised at the edge of the water. The parent and young (still very small and downy) took to the water! The second parent looked loudly and shortly flew low to a nearby point.



Richardson 1937

Mallard Duck (*Anas platyrhynchos*)

May 27, 1937 opening of 20 mi C. into Warner Valley, Oregon

Two nests, from which ♂s were flushed were found and probably two others could have been found with more search. Both nests were located under sagebrush in this area of high chaparral. Curiously, the first nest found was about 100 yards from the nearest small tributary of 20 mi C. Although within 75' of several small pools not more than 2' across or 10' long. The young ducks must either be led to the distant running or more extensive water, or must grow up on the very small pools already mentioned. The former seems more likely for the small pools are drying up. The nesting of Mallards in this habitat cannot be considered atypical for they are common here.

May 29 as above - Another nest found, with only 5 eggs compared to " in one of May 27. Probably this time of year is about the start of duck breeding.

J. Richardson 1937

Golden Eagle (*Aquila chrysaetos*)

May 25, 1937 north 20 miles E., Warner Valley, Oregon - A pair of these birds first seen flying high above canyon. They suddenly shot completely folded their wings and plummeted elegantly across and down toward the north ridge of the canyon. A little later (6:05 P.M.) one, and possibly two, eagles flew low along the side of this canyon's south ridge. A pair of Red-tailed Hawks appeared above the eagle and several times, as individuals, dove on the eagle in bold, long vertical plunges. This was done with such agility that the hawks were at first mistaken for Prairie Falcons, which I already know, may drive Golden Eagles from either their territory or their own.

Richardson 1937

Western Goshawk (*Accipiter striatus*)

June 11, 1937 - Horse Creek Rd., Warner Mts., Oregon - A second specimen was collected today - a much larger bird (♀) compared to the ♂ already collected. A noise of beating wings and breaking branches some 50 yds. from camp, called my attention to the bird - apparently just after it had made an unsuccessful ^(apparently) ~~attempt~~ for some bird or mammal. In ~~seeing~~ as it flew partly toward us up toward the top of a pine. This lack of wariness in relation to man shown in this bird and the collected ♂, may indicate a lack of contact with man or a temperament comparable to the white-tailed kite - something apart from the defense of a breeding territory.

June 13, 1937 - 1 mi. S East Rd., Paulina Mts., Oregon - The above specimen was prepared today. A comparison to the previously collected ♂ (A.H.M.) in certain respects, is of interest.

Wt. ♀ 1040 g ♂ 600+ Can this considerable sexual difference be correlated with life-history - perhaps best exemplified in this species where sexual dimorphism is very marked? Does the ♀ have the "lion's share" in activity as nest building, feeding young, defending nest etc.?

Iris color - ♀ ~~as red~~ ♂ yellowish red

Richardson 1937

Western Goshawks (cont.)

June 13, 1937 - 1 mi. S East Lake, Paulina Mts., Oregon (cont.)

Food - both ♂ and ♀ had only mammal remains, fur and crushed bones, in their gizzards. This is at variance with their reported preference for birds - and is of special interest because the region where these birds were collected abounded in birds of all sorts.

June 21, 1937 - 3 mi. W Paulina Lake, Deschutes Co., Oregon

A young goshawk, noticeably brown, was seen today as it flew over and around an open, partly timbered ridge. It approached unnecessarily near me overhead as though from curiosity. At least one mature goshawk has been seen several times in the general region - testifying to their relative abundance here as in the Crook T.B. region.

J. Richardson 1937

Long-billed Curlew (*Numerius americanus*)

June 6, 1937 Phoebe, Lake Co., Oregon. About 6 of these birds were observed in the more open region of meadows - a region probably a mile from the lake, but connected to it by many canals. This species is apparently breeding, though nest was not found, for the birds were very noisy, circling fairly low with loud cries, whenever a certain region of the meadows was approached. - Is there fairly a positive correlation of size of bird and noise when nest region is approached? This seems true if comparing most pectorines to gulls, Curlews, Falcons etc., but not true with noisy Killdeer, short eagles (golden), some ducks etc. Perhaps the correlation is better with openness of nest site - and this would explain the general noisiness of Charadriiforms.

Richardson 1937

Mourning Dove (*Zenaidura macroura*)

May 25, 1937 north 20 miles Creek, Warner Valley, Oregon - This species is quite abundant as at least 35 were seen during the day. About 20 were seen feeding on a small dirt road at about 5:15 A.M. This would indicate that either this species is not breeding yet or that they have communal feeding grounds even when breeding. The lateness of the year seems to imply breeding but inclement weather may have postponed breeding. At least 6 single birds have been seen during the day - going either up or down the canyon.

May 26, 1937 as above. Doves were more closely noticed today. Several were seen to be paired. It seems probable that this species is just beginning its breeding - that birds are now becoming paired.

Richardson 1937

Velvet Poorwill (Phalaenoptilus nuttalli)

May 25, 1937 mouth 20-mile Cr., Warner Valley, Oregon - Two birds flushed from ground on south slope of canyon in low sagebrush at c 5:30 A.M. No nest was found, but will be looked for later. In any case it is of interest that the two birds were roosting together. They gave several low, mellow notes - flew to widely separated parts of the hillside.

June 4, 1937 Barley Camp, Warner Mts., Oregon. - This species is also common at this higher elevation - but is still associated with open sagebrush country. One bird, a ♂, was collected about 8 P.M., as it was calling from the very top of a dead tree about 20' high. Do birds generally call from the ground? Do they prefer higher perches if such are available.

E. Richardson 1937

43

Pigmy Owl (Glaucidium gnoma)

June 18, 1937 - 3 mi. N Paulina Lake, Deschutes Co., Oregon -

A single bird was collected this morning in a dense growth of young Lodgepole Pine. The weather was intermittently cloudy and rainy. The time about 9 a.m. The Pigmy Owl note was being used by me to attract small birds - as both Dr. Miller and I have been doing continually in this whole region. The note was answered by the owl which continued to give it from another point (c. 100' away) even after I moved the first bird at it. Such "stupidity" or "lack of sense" seems to testify to the owl's rarity in this region - or we should have collected specimens sooner. Chickadees (2) were near and calling the owl at its first perch - though these birds had not come readily to my owl notes this time.

Dissection shows this owl fed recently on a complete white-footed Mouse. This may be an exception to the Pigmy owl's bird diet but does not explain the reaction of small birds to the owl's presence or notes or their "fearlessness" in close approach of the owl.

Richardson 1937

44.

Hairy Woodpecker (*Dryobates villosus*)

June 21, 1937 - 3 mi. W Paulina Lake, Deschutes Co., Oregon

This seems to be the only species of woodpecker, excepting Williamson Sapsuckers, in this whole region. The presence of fine and varied stands of trees seems to make this inexplicable and we must look for a more subtle reason for the paucity of woodpeckers. Food supply seems most likely. The presence of Hairy Woodpeckers rather than other woodpeckers (excepting such atypical ones as flickers & sapsuckers) may indicate (this) a generalized condition and hence greater adaptability to conditions not quite optimum for woodpeckers in general. It may indicate, instead or as well, a more "arrogant" nature in establishing territorial rights.

Both Hairy nests I have well developed young - in fact in one nest at least one young has left the nest cavity. This youngster was found on this cold rainy morning, squatted under a dead log with his head buried in his back - except when he uttered vigorous calls. This indicates some ability of young to find needed protection.

Richardson 1937

Red-naped Sapsucker (Dendrocopos varius)
June 4, 1937 - Barley Camp, Warner Mts., Oregon - This species is abundant in this region, though it may at times show Red-breasted characters in having red in the black upper-breast band. - Workings, in order of their abundance, have been seen on Western Juniper, aspen, and fir. The birds, though specially favoring junipers, were not seen in the more extensive juniper groves above 20-mil. elevs. The association with aspen (Populus tremuloides) is of interest as compared to workings of a Red-naped Sapsucker in a small and only group of young poplars on the Berkeley Campus the last winter.

Richardson 1937

Red-shafted Flicker (*Chaptes cafer collaris*)

June 2, 1937 - Barley Camp, Warner Mts., Oregon - A flicker was heard digging inside a Yellow Pine stump. It stuck its head out of the hole in response to imitation flicker cries - but on seeing me it would not come from the hole but disappeared into it and remained inside, not digging further, for the minutes or so I tried to entice it out. - This seems to show a use of the hole for protection, though several days ago a flicker at once flew from its hole when approached. However, it had been able to watch my approach and leave when it was not very close. - This bird, or its mate, of June 2, was collected. It seems to be a typical ♀ Red-shafted but curiously has one of the central pair of rectrices colored yellow. This feather seems as worn as the others, yet it may have grown in at a different time (not during normal molt). An affinity or correlation with feather pigmentation of the yellow-shafted flicker, seems probable, if the two yellows (of all colors) match.

J. Richardson 1937

Eastern Kingbird (*Tyrannus tyrannus*)

June 6, 1937 - plush, Warner Valley, Oregon - Three of these birds were collected in the open meadow-willow thicket association - the meadow, though cultivated (hay) in part, being quite unassociated with civilization. A pair was first seen and one bird collected. This proved to be the ♂ - with testes hypertrophied. A nest in process of construction was found. The mate, though rather wary, was seen to bring nesting material shortly after the first bird was collected. The nest is in a dead, small, willow, about 10' high.

June 7, 1937 - plush, Warner Valley, Oregon - The mate, ♀, of the above ♂ was collected while returning to the nest - probably still actively constructing it. It seems significant that the nest building instinct has been powerful enough in the ♀ to hold sway after the absence of the ♂. Yesterday the ♀ did not approach me at all when the ♂ was shot - this in contrast to ♀s of other species who may be actively alarmed by the dead ♂ and closely approach it. (See. Beaver Blackbird). The time in the nesting cycle is probably influential in this problem.

Richardson 1937

48.

Black-Billed Magpie (Pica pica hudsonia)

May 25, 1937 - north 20-mile Cr., Lake Co., Oregon - This species is fairly common here although it may not at first appear so, due to its typically solitary habits (especially foraging in this region) and relative quietness compared to its striking coloration. That this species seems to be dominated by other and smaller species is alone interesting and curious. The California fays were twice seen to have a single magpie. Brewer's Bluebirds also were seen to chase a magpie. The mottlessness or submission of these birds may not be a key to their synecies as in preying on eggs or young, however. Several birds were observed foraging on the canyon side, between the small sagebrush bushes. The use of the tail in climbing up hill was noted - apparently it was used for balance, as by moving to side.

May 30, 1937 as above - One magpie seen chasing an owl (very probably a long-eared Owl) from one willow thicket to another, at about 8:30 AM.

June 6, 1937 - Pleshy, Warner Valley, Oregon - Young are very much in evidence here - because of their numbers and noisy cries. This contrasts with 20-mile Creek a week ago, where no young were out of the nest, perhaps none born.

Richardson 1937

Plumbeous Bush-tit (*Poecileparus plumbeus*)

May 27, 1937 - opening of 20-mi. G. into Warner Valley, Oregon

Two birds seen and collected & probably each was one of a pair. These were the only Bush-tits seen or heard by any of us as yet & so the species may be tentatively considered uncommon. The type of habitat, lot of high sagebrush (c 3-6') is barely represented in the canyon proper, but here at the broad outer mouth of the canyon, is fairly extensive (perhaps 10 acres). Both birds were foraging in sagebrush (probably *Artemesia tridentata*).

May 28, 1937 - W rim 20-mi. G., Warner Valley, Oregon

Two bush-tits were again collected but this time high up in region of junipers. This argues against this species being closely limited by altitude but the habitat may remain essentially the same for *Artemesia tridentata* extends all the way up the sides of 20-mi G. canyon. These two specimens freshly represented 2 pairs (evidence being, in part, that ♀ 69 as ♀ 67 of May 27, had a large broad patch). However, one bush-tit was heard later in the day by camp and seemed to be traveling down canyon probably not breeding yet.

The data on iris color from the four specimens collected by now is of interest. Both ♀s, 67 & 69, had a completely yellowish-white

Richardson 1937

Bush-tit (cont.)

May 28, 1937 W rim 20 mi. E., Warner Valley, Oregon cont.
iris This eye "ring" was visible on the ♀ 67
from a distance of about 25'. Both ♂s, 66 &
68, lacked the yellow iris but 68 had a light
brown inner part of the iris. Typically, ♀s
characteristically have this eye "ring", while ♂s
do not but may show some lightness in the
iris. This is at variance with the Coast
Bush-tit. A specific variation? Constant?

- Richardson 1937

Red-breasted Nuthatch (*Sitta canadensis*)

June 16, 1937 - 3 mi. W Paulins Lake, Deschutes Co., Oregon

A single bird was seen entering a hole (apparently of a woodpecker) about 25' high in the trunk of a live white Fir. This may be a nest cavity, but if so probably could not have been excavated by this species in hard live wood - or may only be a roosting cavity. This is likely for the bird entered late in the twilight and was not seen to come out.

June 19, 1937 - as above - The above mentioned cavity is evidently not used as a nesting cavity for birds have not been seen around during the day. If it is assumed that this species generally roosts in cavities, it becomes of interest to know the exact position in roosting. If the floor of the cavity were fairly wide and flat, the nuthatch could roost on it in a relaxed horizontal position. If it were vertical and narrow, the position of the bird would have to be a clinging one. This were of interest in its effect on development of leg proportions, musculature etc. for as is shown in various swift species a perching habit alone can give rise to a marked structural adaptation.

Richardson 1937

Western House Wren (Troglodytes aedon parkmani)

May 26, 1937 c 1 mi. up 20 mi. Cr. Warner Valley, Oregon. - A pair of this species found nesting in a woodpecker hole in a large cottonwood. Young were being fed. This small group of large cottonwoods might be studied with interest for they are almost the only large trees of the whole region.

June 4, 1937 Barley Camp, Warner Ho., Oregon. - This species is very abundant especially in aspen thickets with some undergrowth. Its wide occurrence from valley to mountains, indicate its adaptability and perhaps therefore its constancy of one subspecies in the whole west. - Birds (House-wrens) seen in very early morning sunlight, looked strikingly yellowish. This may be the nature of the light alone or possibly a combination of it and the brown worn plumage.

Richardson 1937

Western Robin (*Turdus migratorius* *propositus*)

May 26, 1937 - ~~climbed up~~ 20 mi. N., Warner Valley, Oregon - A nest of this species found about 12' high in one of a small group of large cottonwoods. (See comment of May 26 under Western House Wren) A study of the nesting sites of other robins in this canyon, might prove of interest.

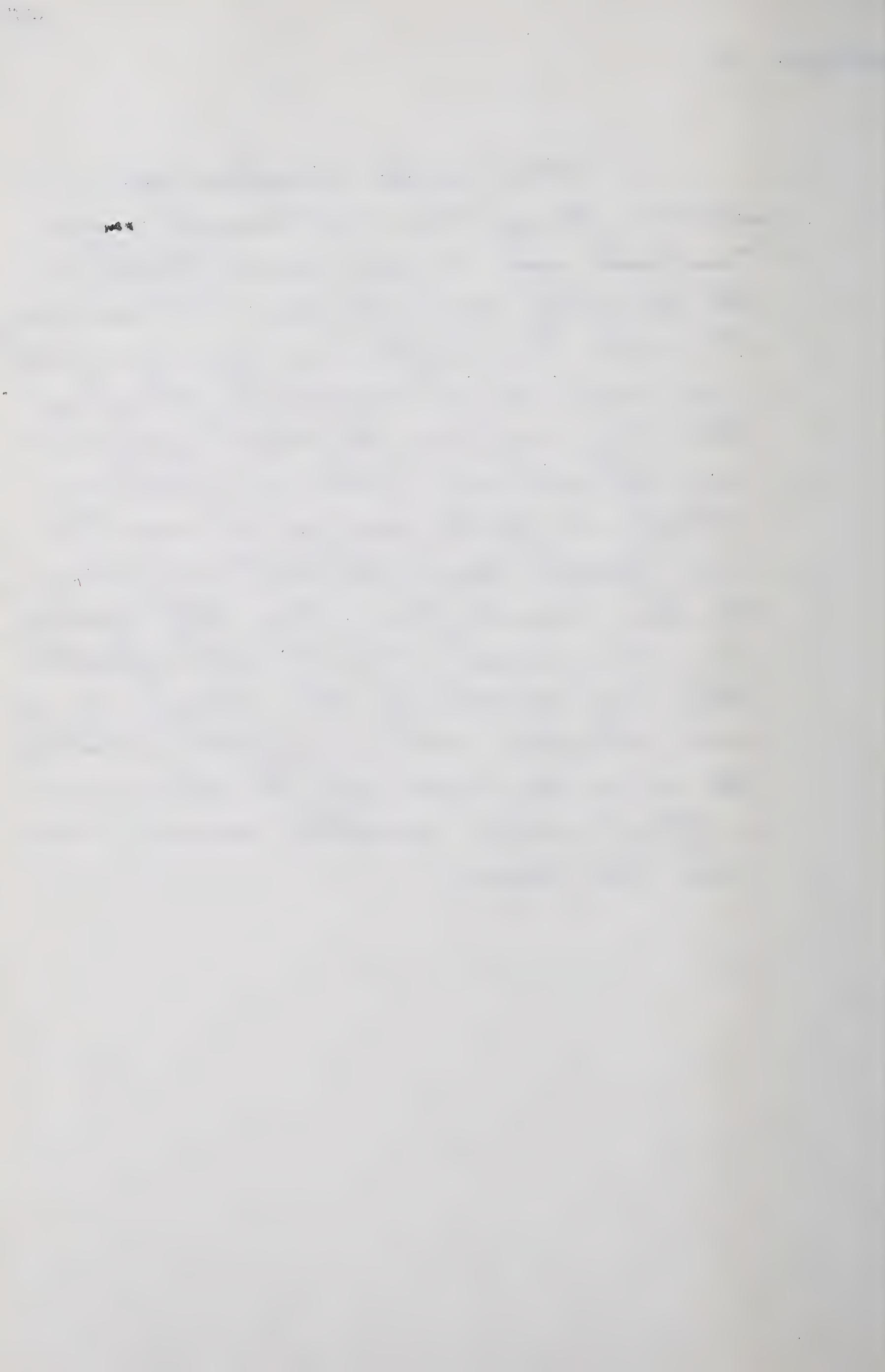
June 21, 1937 - 3 mi. W Paulina Lake, Deschutes Co., Oregon - This species, though seen at various places since the above notation, has not been common. However, in this region they are relatively common due to a concentration near Paulina Creek. This is the only creek or even running or standing water, in this whole mountain area. Possibly this is a food relation as to meadow or stream-side, but this was not definitely ascertained. No robins have been seen or heard except in the vicinity of the stream.

Richardson 1937

Yellow Warbler (Dendroica aestiva)

May 29, 1937 - opening of 20 mi. E. into Warner Valley, Oregon

Two birds seen in and around thickets in this principally sagebrush area. The birds, staying the whole time within an area say 30 yards across, were almost incessantly chasing each other. This went on for about 10 minutes - was still continuing when one bird was collected. No fights were seen to occur. The birds typically stayed well apart (5-10') during the chase, several times they both perched for a few seconds but still well separated. Both birds chased the other though no regular alternation could be detected. Tentatively this was a pair (♂ + ♀) and the chasing was a type of mutual courtship seeming very much like playing.



Richardson 1937

Nevada Cowbird (*Molothrus ater artemisiacus*)

May 29, 1937 opening of 20 mi. E. into Warner Valley, Oregon

Two birds, ♀ + ♂ collected in willow thicket. The ♀ was collected first. The ♂ appeared a few nights later and on the same dead branch as the ♀. Probably this was a pair of cowbirds tending to support Friedmann's conclusion on pairing in cowbirds. The ♀ was found to have an egg in the duct indicating that active parasitism is going on at what seems to be the start of the breeding period in small birds as yellow-throats, of this willow-thicket habitat.

Richardson 1937

Brewer's Blackbird (*Emberiza cyancephala*)

May 25, 1937 - with 20-mb Co., Warner Valley, Oregon - This species is one of the commonest. It seems to have at least a partial riparian habitat - in contrast to the "domesticated" Brewer's Blackbirds of California, but similar, probably, to the mountain breeding (as in Yosemite Valley) population of California birds (Blackbirds). All birds seem paired here. One ♀ was collected about ready to lay eggs - another with very extensive brood-patch (bare skin including belly and much of breast).

June 9, 1937 - White Creek Ph., Warner Mts., Oregon - The ubiquity of this species may well be commented on for it ranges from the low valley floor up high into the mountains. However in the low valley it is generally found near slight slopes with Artemesia and perhaps nearby running water. In the mountains, as in this region, the birds have been seen up to 6500', but only in the stream-willow-meadow association.

Richardson 1937

Red Crossbill (*Loxia curvirostra*)

June 8, 1937 Fort Warner, Hart Mts., Warner Valley, Oregon

Though this species was seen and collected in the Warner Mts., it seems very abundant here. This may be because of the very limited area with Yellow Pines & a consequent concentration of the birds. Several pines where these birds seemed consistently feeding, were observed. Many of the cones, the new (just opened ones), were completely without bracts, leaving just the core. That this was not the work of squirrels was obvious as birds were seen working on the cones partially denuded, and the work was evidently not that of a graver as bracts were broken off leaving many fibers. Cones seemed typically attacked on the side, first - though the starting point probably depends more on the most convenient perch either on the cone attacked or an adjacent cone or branch.

June 14, 1937 East Lake, Paulina Mts., Oregon - This species is the most abundant of all species in this region - a region of Lodgepole Pine and Hemlock with practically no surface water and vegetation. Large flocks (upto 500 even) of the birds fly over quite often and have been seen and heard feeding in the Hemlocks. The seeds of

Richardson 1937

Red Crossbill (cont.)

June 14, 1937 East Lake, Paulina Mts, Oregon (cont.)

the Hemlocks cones appear to be the only food available for them in this region so that the floral association is very definite.

It were interesting to know if Crossbills are equally abundant in these mountains in the lower Yellow Pine region, i.e. is a preference for Hemlocks shown? This may be, for the cone-bracts are much thinner and the seeds more easily obtained.

Dissection of specimens collected show the gonads to be extremely small (late usually 1-2 mm), though most birds are at least starting the nesting cycle. Though this may explain the flocking in part it does not explain the irregular breeding. One cannot readily admit that crossbills are not subject to the general sexual cycle of birds as shown by many workers (Rowan, Bissonette, Knobell etc.).

Richardson 1937

Brewer Sparrow (*Spizella breweri*)

May 26, 1937 north 20 mi. C., Warner Valley, Oregon. - As mentioned in the general comment for today, this species was common on a high sagebrush mesa. Many birds were singing but the establishment of definite territories was obscure (probably as little time was left for study). One bird was seen with nesting material. A second bird stayed near it as it went from bush to bush apparently with no nest yet started. Suddenly the second bird (♂) copulated with the first (♀), the nest material still held in the mouth. A third bird appeared and a chase of all three ensued but which remained the aggressor was undetermined.

June 3, 1937 Barley Camp, Warner Mts., Oregon - This species is still present though this location is several thousand feet higher than the 30-miles C. camp. Their distribution is still restricted, however to the Artemesia (still common though somewhat dwarfed) - typically to extensive sagebrush areas and rarely where conifers or aspens intermingle much with sagebrush.

Richardson 1937

Catalogue

9 mi. S Adel, mouth 20 mi. Creek, Lake Co., Oregon May 25, 1937.

✓ 51 ♂ *Aphelocoma californica* sp. 96.5 g.
 ✓ 52 ♂ *Aphelocoma californica* sp. 92.5 g.
 ✓ 53 ♂ *Hedynastes melanostethus* sp. 46.5 g.
 ✓ 54 ♂ *Empidonax* sp. Testes 6 mm. 12.5 g.
 ✓ 55 ♀ *Trochocercus cyanacephalus* sp. large broad patch 62.5 g.
 May 26, 1937 56 ♀ Golden-mantled Ground-Squirrel 203.5 g.
 280-98-22-39 no embryos

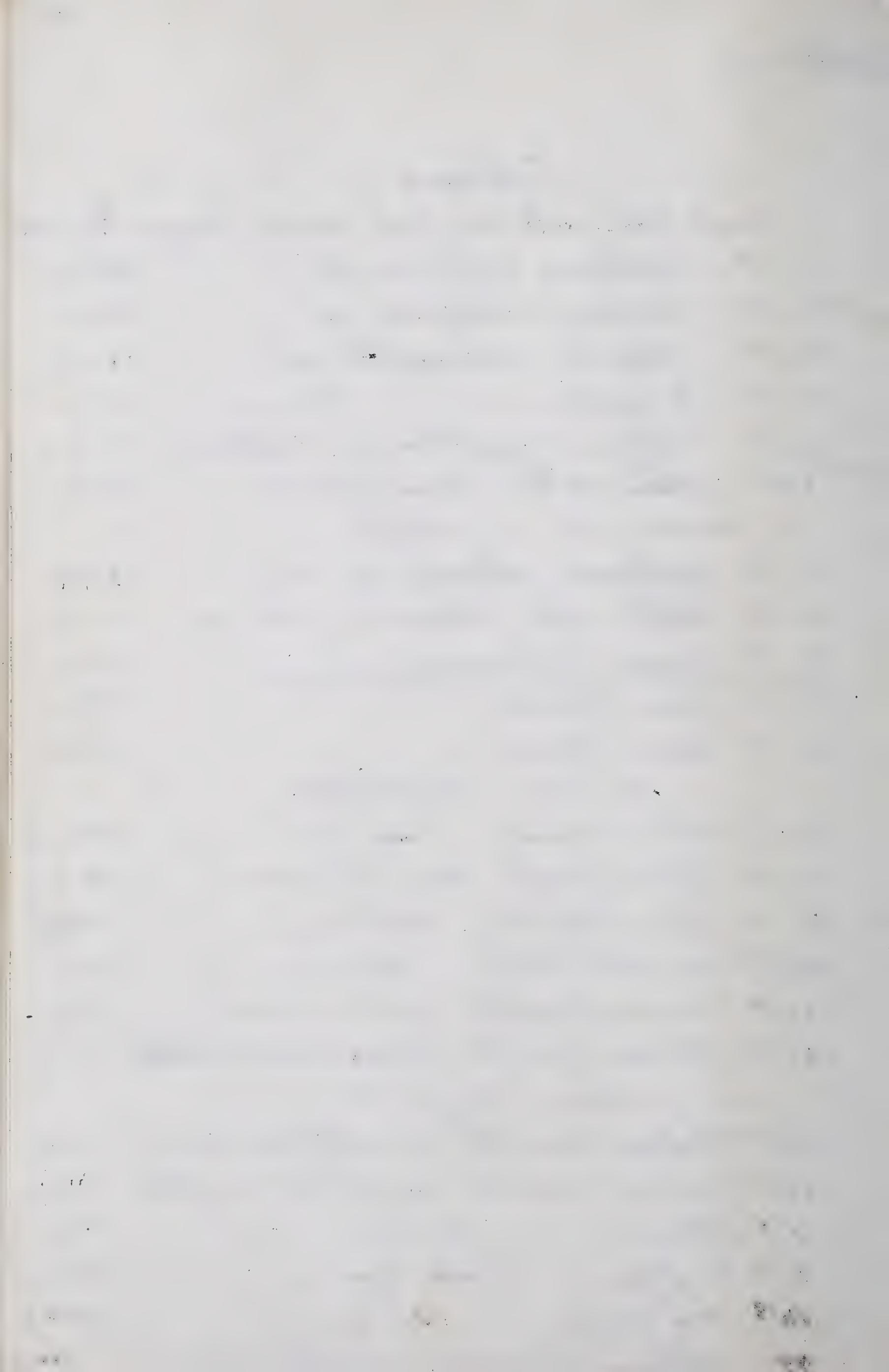
✓ 57 ♂ *Aphelocoma californica* sp. Testes 9 mm. 97.5 g.
 ✓ 58 ♂ *Colaptes cafer collaris* (?) Testes 13 mm. 157 g.
 - 59 ♀ *Picus canus ludoviciana* 34.5 g.
 - Sent on permanent deposit to Helsingfors Mus., Finland
 - 60 ♀ Brewer Sparrow 10.3 g.
 ✓ 61 ♂ Brewer Sparrow 10.0 g.

as above May 27, 1937

✓ 62 ♂ California Quail Testes 13 mm. 169.5 g.
 ✓ 63 ♀ California Quail Egg in nest 4:20 AM. 188 g.
 ✓ 64 ♀ Chipping Sparrow small wary 11.5 g.
 ✓ 65 ♂ Long-tailed Chat Testes 9 mm. 23 g.
 ✓ 66 ♂ Plumbeous Bush-tit Dark iris, Testes 5 mm. 6 g.
 ✓ 67 ♀ Plumbeous Bush-tit yellow iris, large broad patch 5.5 g.

as above May 28, 1937

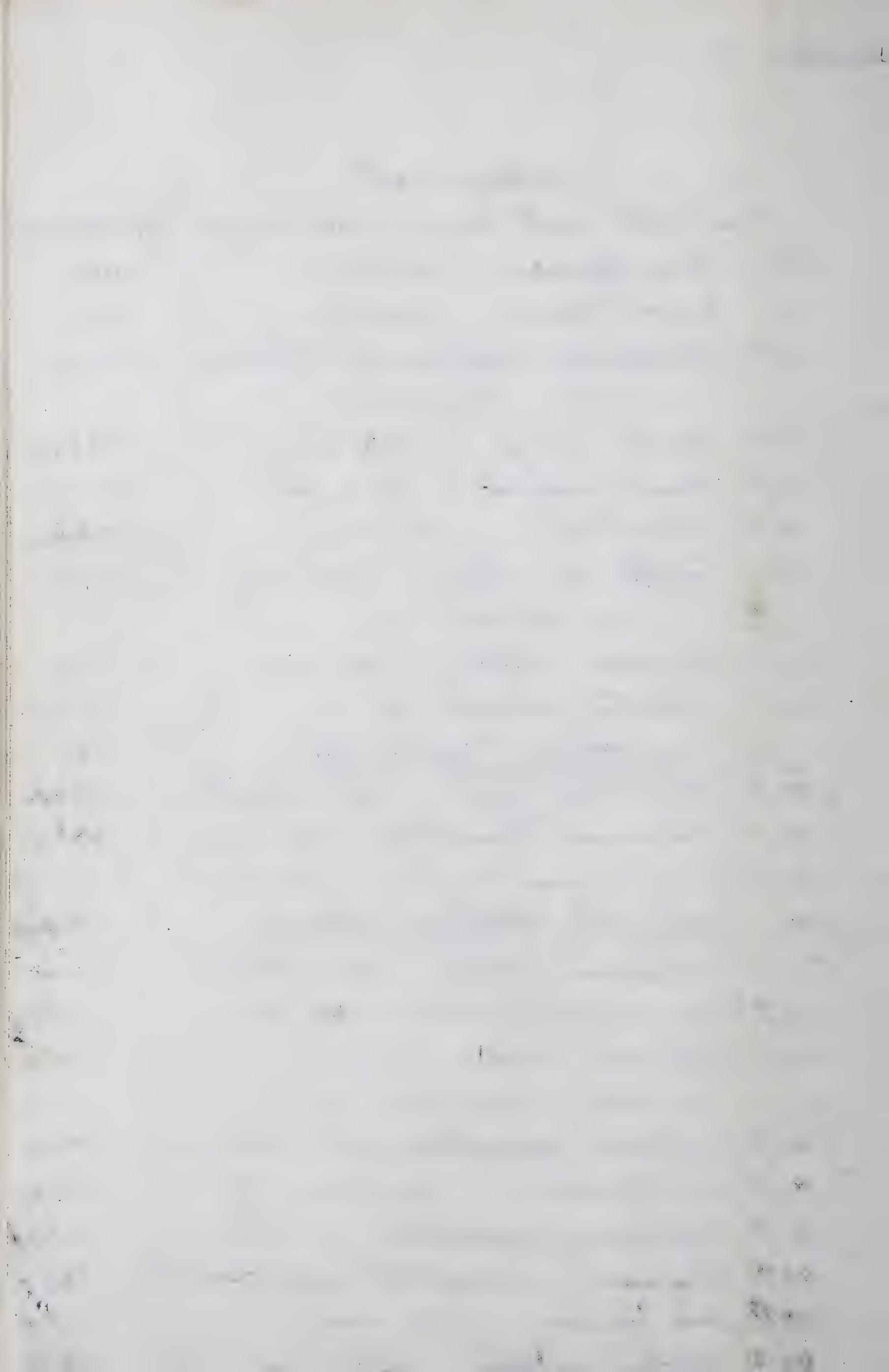
✓ 68 ♂ Plumbeous Bush-tit *Innis* iris light brown, Testes 4 mm. 6.3 g.
 ✓ 69 ♀ Plumbeous Bush-tit large broad patch, iris yellow 6.5 g.
 ✓ 70 ♂ Titmouse Testes 6 mm. 17.4 g.
 ✓ 71 ♂ Song Sparrow Testes 10 mm. 22 g.
 ✓ 72 ♀ Song Sparrow 20 g.
 73 *Sceloporus* (From West ridge of 20 mi. Cr.)



F. Richardson 1937

Catalogue cont.

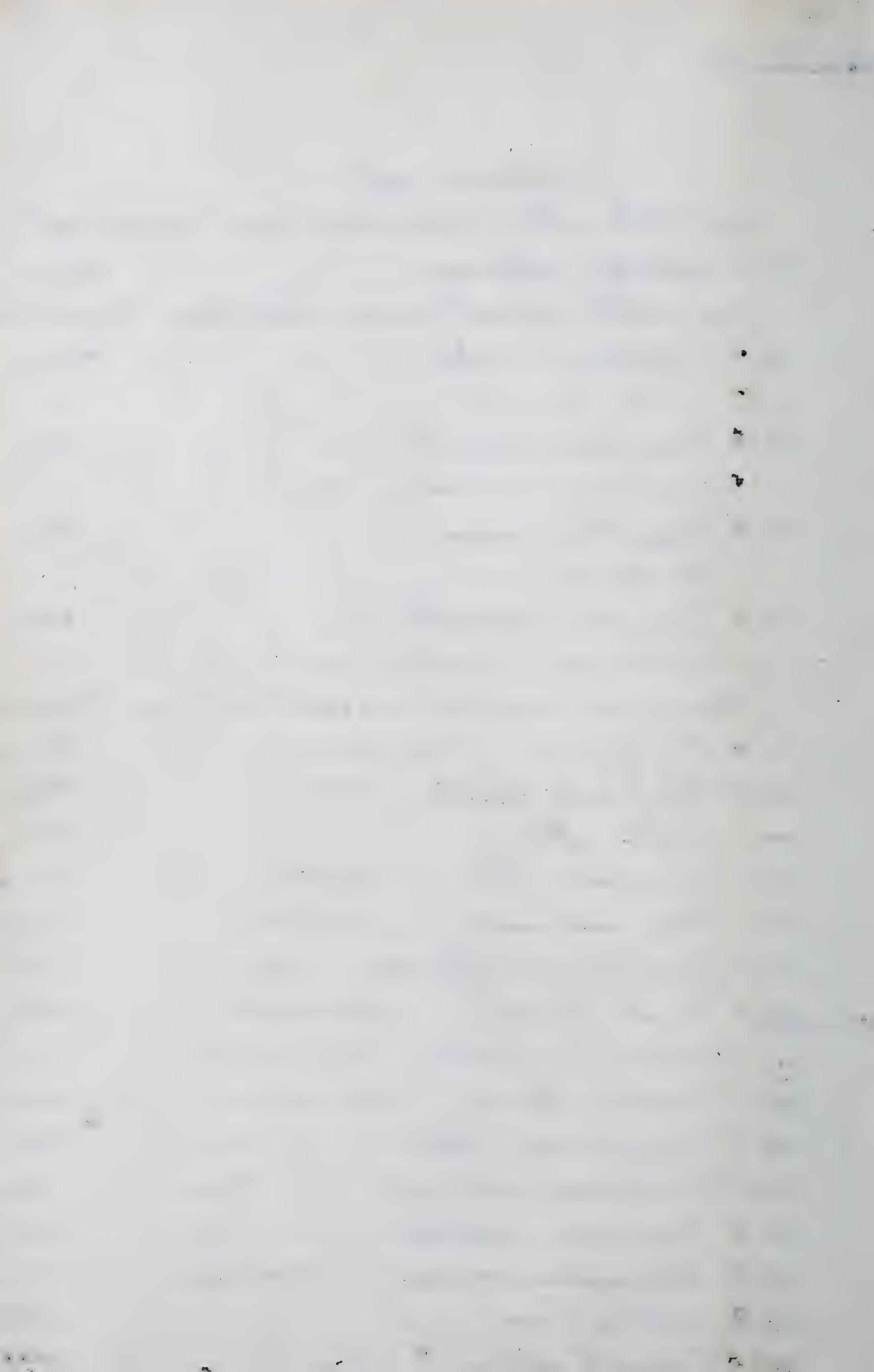
9 mi S Adel, mouth 20-mi Cr., Lake C., Oregon	May 28, 1937 cont.
✓ 74 ♂ Brewer Sparrow (alcoholic)	10.4 g.
✓ 75 ♂ Brewer Sparrow (alcoholic)	11.2 g.
✓ 76 ♂ <i>Petrochelidon lunifrons</i> ssp. Testes 9 mm.	23.2 g.
as above May 29, 1937	
✓ 77 ♂ Nevada Cowbird Testes 8.5 mm.	47.6 g.
✓ 78 ♀ Nevada Cowbird Egg in duct	37.3 g.
✓ 79 ♂ Yellowthroat Testes 7.5 mm.	10.3 g.
✓ 80 ♂ <i>Colaptes cafer collaris</i> Testes 14 mm. large broad patch	161.5 g.
✓ 81 ♂ <i>Dendroica aestiva</i> Testes 7 mm.	8.5 g.
✓ 82 ♂ <i>Lophortyx vallicola</i> ssp.	154.5 g.
as above May 30, 1937	
sent on permanent deposit to Helsingfors Mus., Finland	
✓ 83 ♀ Black-billed Magpie Large broad patch	152.3 g.
✓ 84 ♂ Red-winged Blackbird Testes 11 mm.	63.8 g.
✓ 85 ♂ Rough-winged Swallow Testes 8 mm.	14.6 g.
✓ 86 ♂ Tachycineta thalassina affinis affinis sent on permanent deposit to Helsingfors Mus., Finland	15.9 g.
♀ <i>Iridoprocne bicolor</i> Egg in duct	
✓ 87 ♂ Rough-winged Swallow Testes 6 mm.	12.5 g.
✓ 88 ♀ <i>Iridoprocne bicolor</i>	16.9 g.
as above May 31, 1937	
✓ 89 ♂ <i>Euphagus cyanocephalus</i> ssp. Testes 14 mm.	72.7 g.
✓ 90 ♂ Lark Sparrow Testes 13 mm.	28.6 g.
✓ 91 ♂ <i>Euphagus cyanocephalus</i> ssp. Testes 13 mm.	67.8 g.
✓ 92 ♀ <i>Euphagus cyanocephalus</i> ssp. Broad patch	57.5 g.
✓ 93 ♂ Lark Sparrow Testes 12 mm.	31.3 g.
✓ 94 ♂ <i>Lophortyx vallicola</i>	159.6 g.



F. Richardson 1937

Catalogue cont.

9 mi. S Adel, mouth 20-mile Cr., Lake Co., Oregon - May 31, 1937 cont.			
✓ 95	♂ <i>Lophortyx californica</i>	147 g.	
	9 mi. S Adel, E from mouth 20-mi. Cr., Lake Co., Oregon	June 1, 1937	
✓ 96	♂ <i>Dipodomys ordii</i> sp.	46.8 g.	
	240 - 140 - 41 - 14		
✓ 97	♀ <i>Peromyscus maniculatus</i> sp.	32.6 g.	
	152 - 70 - 20 - 20	7 embryos	19 mm.
✓ 98	♀ <i>Perognathus parvus</i>	22.9 g.	
	175 - 89 - 23 - 9		
✓ 99	♀ <i>Peromyscus maniculatus</i> sp.	31.0 g.	
—	161 - 71 - 20 - 24	6 embryos	3 mm.
	Barley Camp, Warner R. Hi., 14 mi. SW Adel, Lake Co., Oregon	June 2, 1937	
✓ 100	♂ Fox Sparrow	Testes 10 mm.	28.1 g.
✓ 101	♂ <i>Oberholseria chlorura</i>	Testes 12 mm.	29.4 g.
✓ 102	♀ <i>Colaptes cafer</i>		188.3 g.
103	<i>Arytrodesmus lewis</i>	(alcoholic)	95.2 g.
104	<i>Sitta carolinensis</i>	(alcoholic)	15.5 g.
105	♂ <i>Oberholseria chlorura</i>	Testes 12 mm.	30.1 g.
106	♂ Douglas Squirrel	325 - 135 - 53 - 25	278.3 g.
	As above (June 2, 1937)	June 3, 1937	
107	♂ Douglas Squirrel	284 - 125 - 52 - 27	111.6 g.
✓ 108	♂ <i>Arytrodesmus lewis</i>	Testes 9 mm.	95.5 g.
✓ 109	♂ <i>Dendroica auduboni</i>	Testes 8 mm.	13.3 g.
✓ 110	♂ <i>Dendroica auduboni</i>	Testes 10 mm.	12.6 g.
✓ 111	♂ <i>Sphyrapicus varius</i>	Testes 7.5 mm.	45.1 g.
✓ 112	♀ Warbling Vireo		11.5 g.
✓ 113	♂ <i>Cyanerpes cyaneus</i>	Testes 10 mm.	121. g.



F. Richardson 1937

Catalogue (cont.)

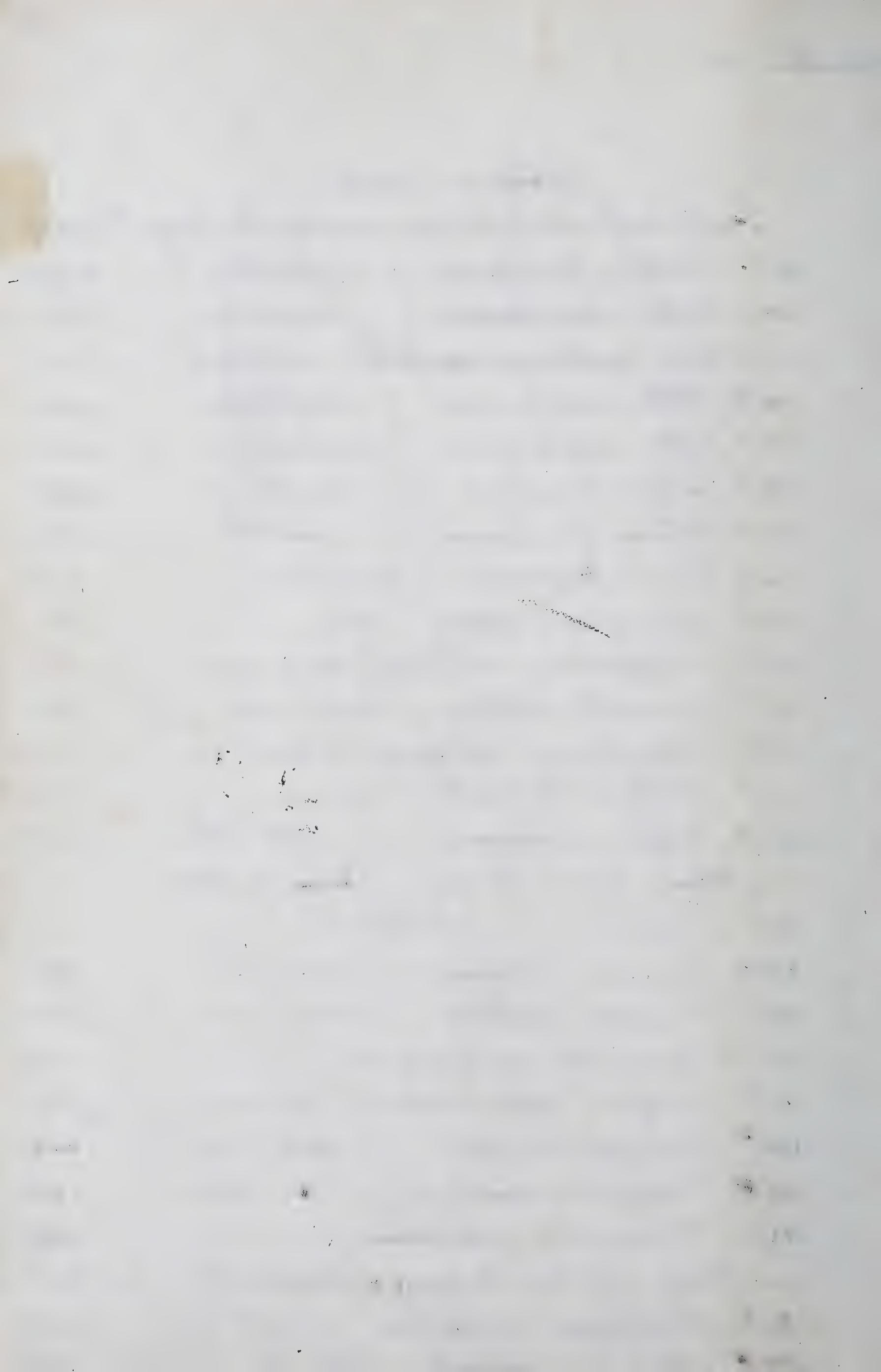
		Barley Camp, Warner Mts., 14 mi. SW Adel, Lake Co., Oregon	June 4, 1937
114		<i>Cathartes familiaris</i> sp. (alcoholic)	8.7 g.
115		<i>Sitta canadensis</i> (alcoholic)	9.4
116	♂	<i>Sitta carolinensis</i> (skeleto)	16.5
117	♀	<i>Sitta carolinensis</i> (skeleto)	15.2
118	♂	<i>Sitta carolinensis</i> (skeleto)	16
119	♂	<i>Cathartes familiaris</i> (skeleto)	7.5
120	♀	<i>Cathartes familiaris</i> (skeleto)	7.9
121	♀	<i>Falco sparveria</i> Egg in duct	124.6
122	♀	<i>Sphyrapicus varius</i> laying	55.
123	♂	<i>Oberholseria chlorura</i> Testes 13 mm.	31.6
124	♂	<i>Cyanocitta stellare</i> Testes 10 mm.	115.6
125	♂	<i>Oberholseria chlorura</i> Testes 11 mm.	27.9
126	♂	Vultall Poorwill	95.3
127	♀	<i>Sitta carolinensis</i> (skeleto)	16.8

Flush, Lake Co., Oregon June 6, 1937

128		<i>Coturnis</i> (alcoholic)	
129	♂	<i>Tyrannus tyrannus</i> . Testes 18 mm.	42
130	♂	<i>Melospiza melodia</i> Testes 11 mm.	22.1
131	♀	<i>Passerellus sandwichensis</i>	17.5
132	♂	<i>Colaptes cafer collaris</i> Testes 11 mm.	151.3
133	♂	<i>Melospiza melodia</i> Testes 10 mm.	20.2
134	♂	<i>Passerellus sandwichensis</i> Testes 10 mm.	17.2
135	♀	<i>Passerellus sandwichensis</i>	16.1

Flush, Lake Co., Oregon June 7, 1937

136	♀	<i>Melospiza melodia</i> laying	23.6
137	♂	<i>Melospiza melodia</i> Testes 8 mm.	20.3



Catalogue (cont.)

	Plush, Lake Co., Oregon	June 7, 1937 (cont.)	
✓ 138	♂ <u>Dendroica aestiva</u>	Testes 9 mm.	8.9.
✓ 139	♂ <u>Dendroica aestiva</u>	Testes 5 mm.	9.
	Tri. N Plush, Lake Co., Oregon	June 8, 1937	
✓ 140	♂ Horned Lark	Testes 9 mm.	29.9
✓ 141	♀ Horned Lark	Laying	31.8
✓ 142	♂ Horned Lark	Testes 10 mm.	29.4
	N base Creek Ph., Klamath Mts., Lake Co., Oregon	June 9, 1937	
✓ 143	♀ <u>Empidonax wrighti</u>		11.2
		June 10, 1937	
✓ 144	♂ <u>Trochocercus oreganus</u>	Testes 9 mm.	18.9
✓ 145	♀ <u>Oreobolusia chlorura</u>		25.5
✓ 146	♀ <u>Cyanocitta stelleri</u>		100.
✓ 147	♂ <u>Hylocichla guttata</u>	Testes 9.5 mm.	22
✓ 148	♀ <u>Trochocercus oreganus</u>		17.7
✓ 149	♂ <u>Cyanocitta stelleri</u>	Testes 7.5 mm.	115.3
✓ 150	♂ <u>Certhia familiaris</u>	(skeleton)	7.5
✓ 151	♂ <u>Picoides arcticus</u>	Testes 6 mm.	70.5
±		June 11, 1937	24.2
✓ 152	♂ <u>Hylocichla guttata</u>	Testes 11 mm.	24.2
✓ 153	♂ <u>Oreobolusia chlorura</u>	Testes 11 mm.	29.6
✓ 154	♂ <u>Oreobolusia chlorura</u>	Testes 11 mm.	30.6
✓ 155	♂ <u>Oreobolusia chlorura</u>	Testes 10 mm.	29.9
156	<u>Sitta canadensis</u>	(alcoholic)	10.9
157	<u>Sitta canadensis</u>	(alcoholic)	10.5
158	♂ <u>Sitta pygmaea</u>	(skeleton)	9.3
159	♂ <u>Sitta carolinensis</u>	(skeleton)	16.5

F. Richardson 1937

Catalogue (cont.)

N base Crook Rb., Warner Mts., Lake C., Oregon June 11, 1937 (cont.)

✓ 160 ♂ Hylocichla guttata Testes 10 mm. 24.5 g.✓ 161 ♀ Aotus atricapillus (shin + skeleton) 1040.East Lake, ^{Paulina} ~~Deschutes~~ Mts., Deschutes Co., Oregon June 13, 1937162 Hyla regilla (alcoholic)163 Hyla regilla "164 Hyla regilla "165 Hyla regilla "166 Hyla regilla "167 Hyla regilla "168 Bufo "

1 mi. S East Lake, Paulina Mts., Deschutes Co., Oregon June 13, 1937

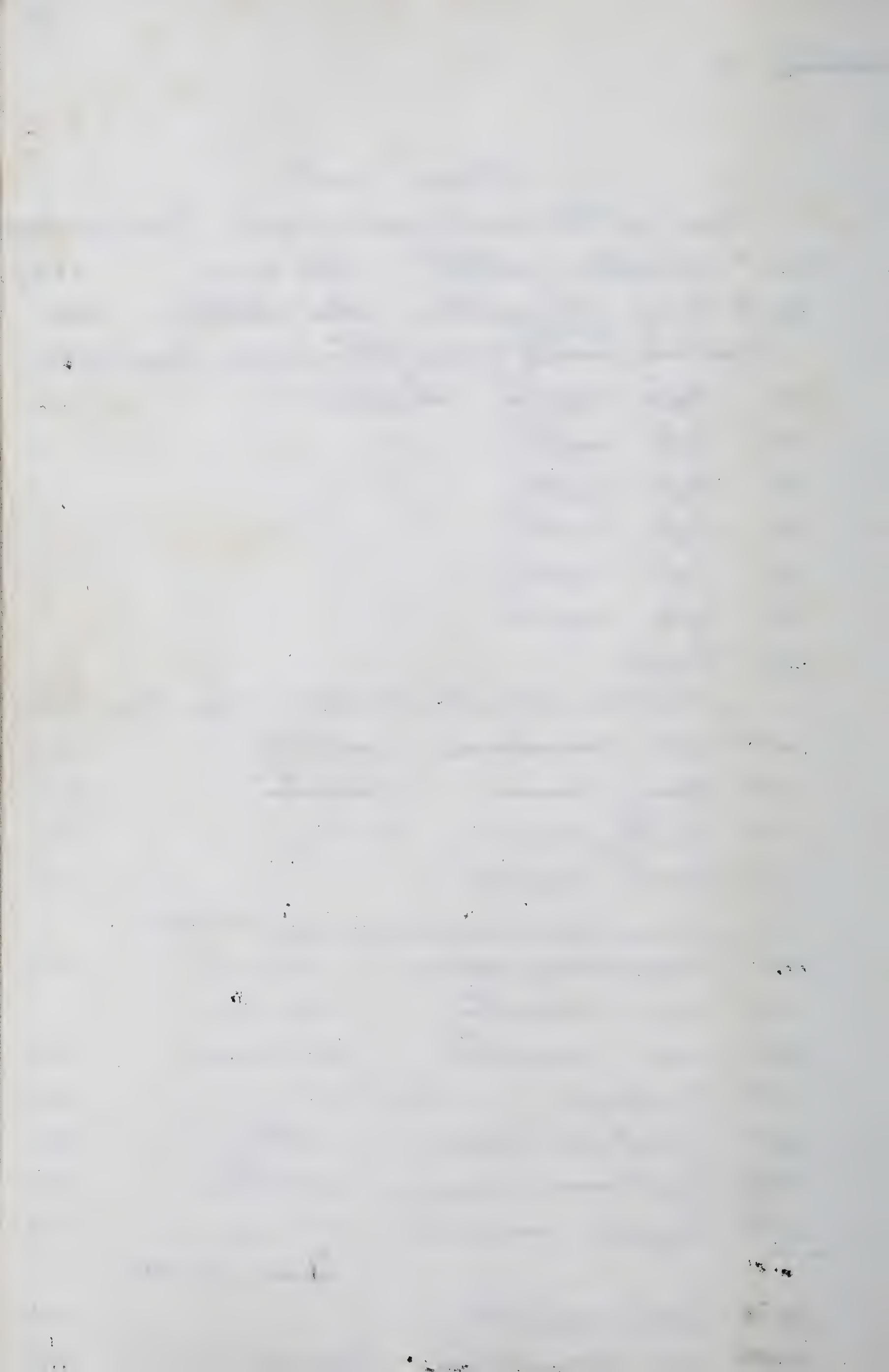
✓ 169 ♂ Sitta canadensis (skeleton) 10.7✓ 170 ♂ Spinus pinus (skeleton) 13.7✓ 171 ♂ Spizella passerina Testes 8 mm. 12.2✓ 172 ♂ Spizella passerina 11.5

sent on permanent deposit to Helsingfors Mus., Finland June 14, 1937

[173 ♂ Carpodacus cassini Testes 9 mm. 27.2✓ 174 ♂ Loxia curvirostra Testes 2 mm.✓ 175 ♂ Loxia curvirostra Testes 1.5 mm. 31.2176 ♂ Eutamia 188-75-31-17 31.3✓ 177 ♂ Carpodacus cassini (skeleton) 37.1✓ 178 ♀ Carpodacus cassini (skeleton) 29.5✓ 179 ♂ Regulus calendula Testes 5 mm. 6.3

June 15, 1937

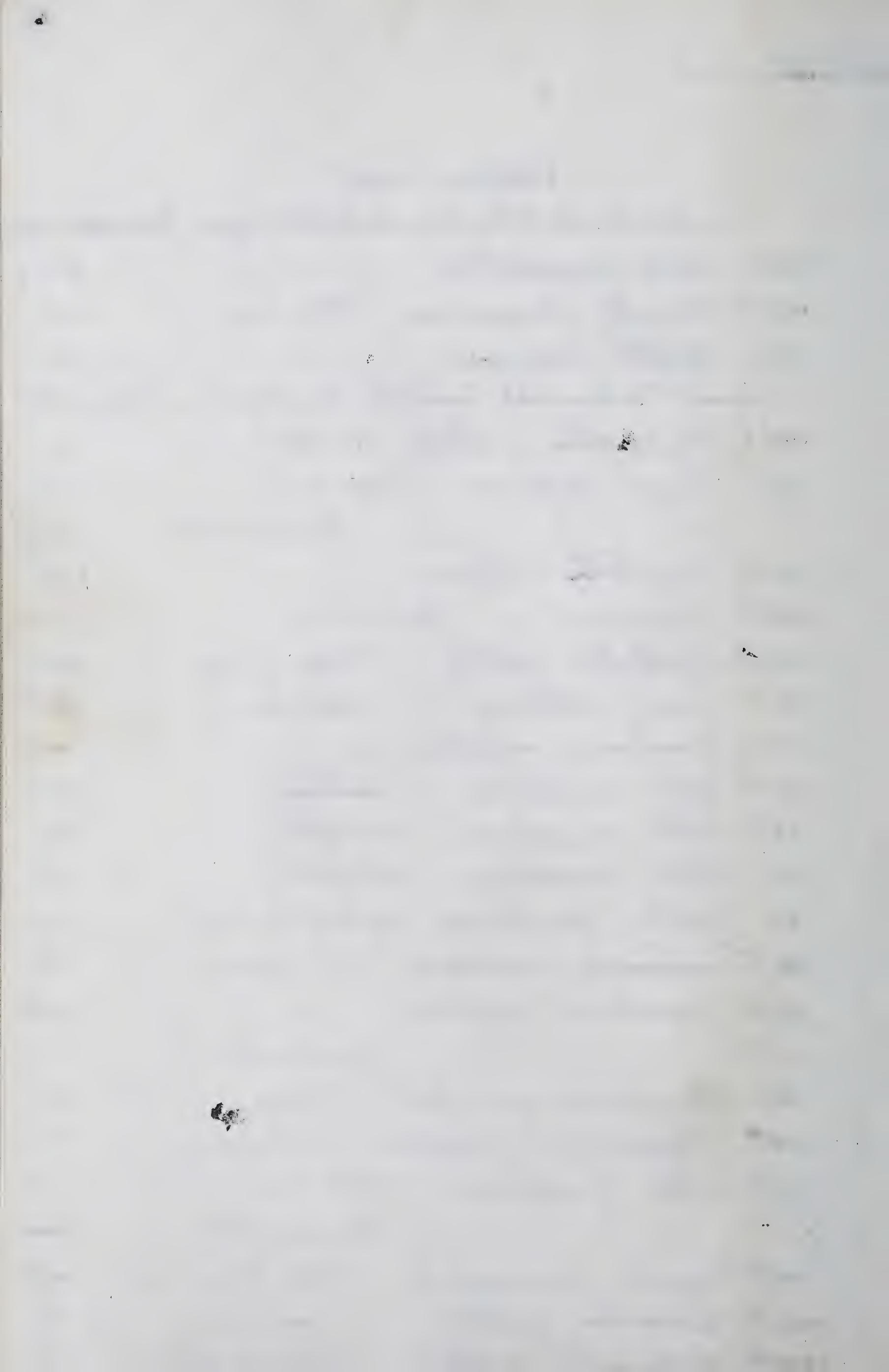
✓ 180 ♀ Loxia curvirostra 30.4✓ 181 ♂ Loxia curvirostra Testes 1 mm. 34.2



F. Richardson 1937

Catalogue (cont.)

1 mi. S East Lake, Paulina Mts., Deschutes Co., Oregon		June 15, 1937	Cont.
✓ 182	♀ <i>Loxia curvirostra</i>	31.9	g.
✓ 183	♂ <i>Spizella passerina</i>	Testes 6 mm.	11.9
✓ 184	<i>Spizella passerina</i>		13
3 mi. W Paulina Lake, Deschutes Co., Oregon		June 16, 1937	
✓ 185	♂ <i>Hylocichla guttata</i>	Testes 9 mm.	
✓ 186	♂ <i>Trochocercus oreocanescens</i>	Testes 8 mm.	16.5
June 17, 1937			
✓ 187	♀ <i>Dryobates villosus</i>		65.5
188	♀ <i>Tetramis</i>	184-74-31-18	45.1
✓ 189	♂ <i>Hylocichla guttata</i>	Testes 12 mm	23.7
✓ 190	♂ <i>Vireo solitarius</i>	Testes 6 mm.	13.8
✓ 191	♀ <i>Dendroica auduboni</i>		12
✓ 192	♂ <i>Sitta canadensis</i> (shattered)		9.2
193	♀ <i>Sitta canadensis</i> (shattered)		8.7
194	<i>Sitta canadensis</i> (alcoholic)		9.3
195	<i>Certhia familiaris</i> (alcoholic)		7.3
✓ 196	♂ <i>Dendroica auduboni</i>	Testes 7 mm.	12.4
✓ 197	♀ <i>Dendroica auduboni</i>		11.5
June 18, 1937			
✓ 198	♀ <i>Dendroica auduboni</i>	Laying	14.1
✓ 199	♂ <i>Glaucidium gnoma</i>	Testes 6 mm.	71.8
✓ 200	♂ <i>Certhia familiaris</i>	Testes 7 mm.	7.2
June 19, 1937			42
✓ 201	♂ <i>Regulus calendula</i>	Testes 5 mm.	6.2
✓ 202	♀ <i>Hylocichla guttata</i>	Laying	28.
✓ 203	♂ <i>Hylocichla guttata</i>	Testes 10 mm.	26.7



F. Richardson 1937

Catalogue (cont.)

3 mi. W Paulina Lake, elev. 5700; Deschutes Co., Oregon June 19, 1937 (cont.)

204	<i>Sitta canadensis</i>	(alcoholic)	11.9
✓ 205 ♂ <i>Tunca oregonensis</i>		Testes 10 mm.	16.8
✓ 206 ♂ <i>Sitta canadensis</i>		(skeleton)	10.4
✓ 207 ♀ <i>Sitta canadensis</i>		(skeleton)	11.1
✓ 208 ♀ <i>Penthestes gambeli</i>		(skeleton)	10.8

June 20, 1937

✓ 209 ♂ <i>Sphyrapicus thyroideus</i>	Testes 8 mm.	57.8
✓ 210 ♂ <i>Dryobates villosus</i>	Testes 5 mm.	73.2
✓ 211 ♂ <i>Sitta canadensis</i>	(skeleton)	11.2
✓ 212 ♂ <i>Sitta canadensis</i>	(skeleton)	10.9
✓ 213 ♂ <i>Certhia familiaris</i>	(skeleton)	8.2
✓ 214 <i>Certhia familiaris</i>	(alcoholic)	8.3

June 21, 1937

✓ 215 ♂ <i>Peromyscus maniculatus</i>	141-66-19-17	11.9
✓ 216 ♂ <i>Peromyscus maniculatus</i>	146-66-20-17	19.
✓ 217 ♂ <i>Peromyscus maniculatus</i>	(unshinable)	19.7
✓ 217 ♂ <i>Peromyscus maniculatus</i>	153-73-20-18	18.
✓ 218 ♂ <i>Eutamias</i>	184-72-31-18	43.8
✓ 219 ♂ <i>Eutamias</i>	184-78-30-17	41.6
✓ 220 ♂ <i>Passerella iliaca</i>	Testes 8 mm.	27.3
✓ 221 ♂ <i>Oberholseria chlorura</i>	Testes 15 mm.	27.3

June 22, 1937

✓ 222 ♂ <i>Sitta canadensis</i>	(skeleton)	10.2
— 4 mi. N Redding		Calif. June 23, 1937.
✓ 223 <i>Sitta carolinensis</i> aculeata	(skeleton)	16.7
✓ 224 <i>Sitta carolinensis</i> aculeata	(skeleton)	16.9

